Chapter 1 - Cardiovascular Testing

1) A patient with a murmur is suspected of having an abnormal heart valve. Which test would be most appropriate to evaluate the presence and severity of this condition?

- A. 12-Lead electrocardiogram (ECG)
- B. Holter monitor
- C. Exercise stress test
- D. Transthoracic echocardiogram
- E. Myocardial perfusion scan

2) A patient complains of intermittent palpitations. Which test would you order to assess this patient's condition?

- A. PET scan
- B. Holter monitor
- C. Exercise stress test
- D. Transthoracic echocardiogram
- E. Myocardial perfusion scan

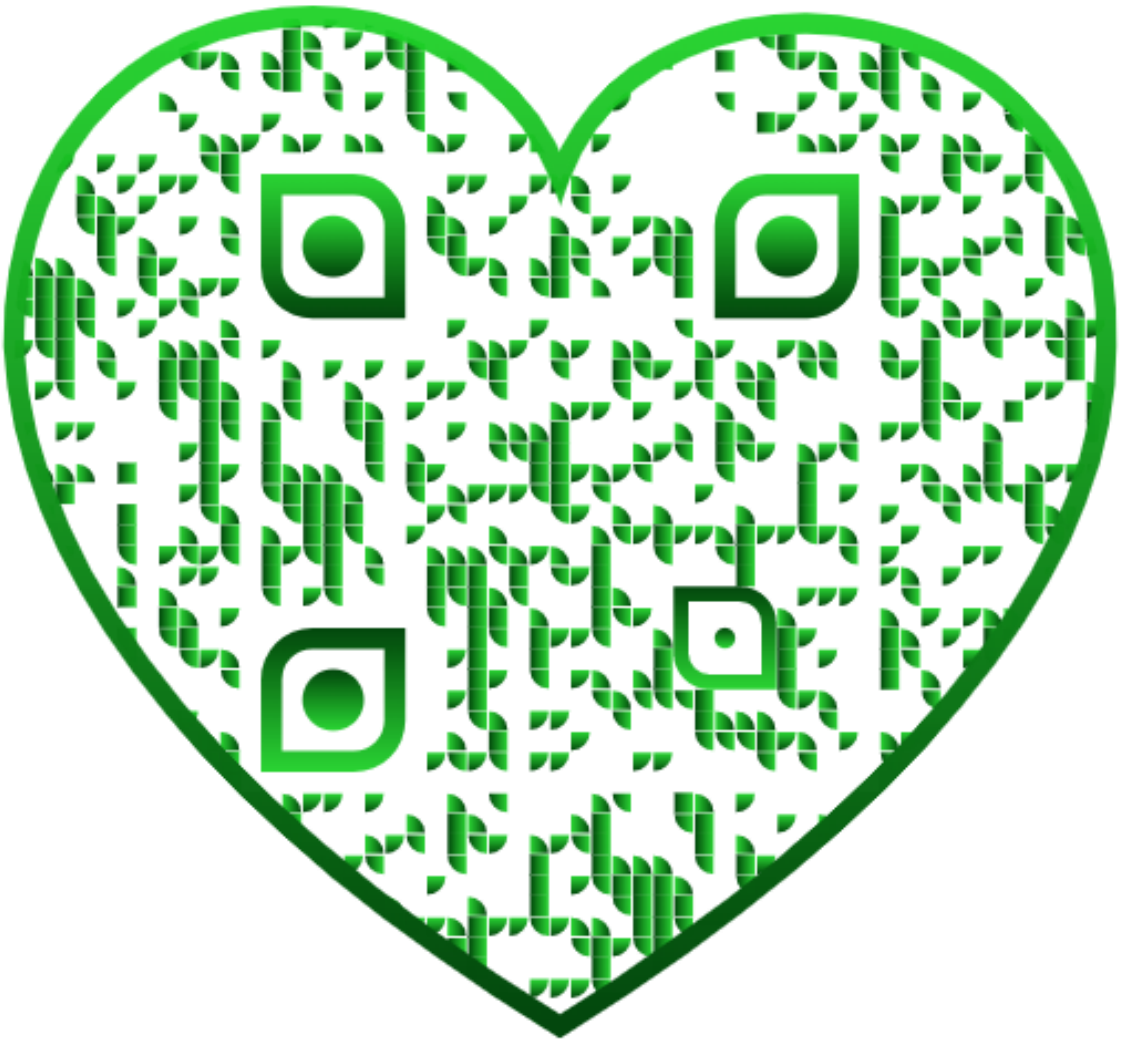
3) A 63-year-old truck driver with a history of diabetes mellitus, cigarette smoking, and a sedentary lifestyle due to severe right knee osteoarthritis has new-onset chest pain. Which is the most reasonable test to evaluate myocardial ischemia in this patient?

- A. Adenosine myocardial perfusion scan
- B. Exercise stress test
- C. Exercise myocardial perfusion study
- D. Cardiac CT imaging
- E. Cardiac catheterization

4) A 45-year-old woman reports intermittent palpitations and near syncope. A 12-lead electrocardiogram demonstrates a prolonged QT interval. Of the following medications she has been prescribed, which may cause QT prolongation and torsades de pointes (i.e., polymorphic ventricular tachycardia)?

- A. Verapamil
- B. Metoprolol
- C. Metformin
- D. Neurontin
- E. Clarithromycin

Chapter 2 - Cardiac Arrest



1) Which of the following statements is *true*?

A. The incidence of VF at the initial rhythm for in-hospital cardiac arrest is roughly 80%.

B. Although once the most common initial rhythm encountered with out-of-hospital cardiac arrest, the incidence of VF or PVT is decreasing markedly.

C. In-hospital cardiac arrest is typically characterized by atrial fibrillation leading to VF.

D. Survival with VF is lower than that observed with PEA.

E. Pediatric cardiac arrests are usually due to cardiac-related etiologies.

2) Which of the following are factors proven to enhance prehospital survival?

A. Occurrence of a witnessed arrest

B. Rapid implementation of bystander CPR

C. Presence of VF as the initial rhythm

D. Early defibrillation

E. All of the above

3) Which of the following statements is *true*?

A. The recommended rate for chest compressions is 60 beats/min.

B. The first action on recognition of a patient with cardiac arrest is to begin chest compressions.

C. CPR should be performed using cycles of 30 chest compressions followed by 2 rescue breaths.

D. The presence of a pulse should be assessed immediately following a defibrillation attempt in patients with VF/PVT.

E. None of the above.

4) The concept of CCR entails which of the following?

A. Continuous chest compressions for bystander resuscitation

B. Use of a three-phase time-sensitive model for defibrillation

C. Use of hypothermia for all comatose patients

D. Early emergent catheterization for all resuscitated victims

E. All of the above

5) Which of the following statements is *true*?

A. Epinephrine should be administered immediately on recognition of a patient with cardiac arrest.

B. CPR should be provided immediately to a patient with cardiac arrest with minimal interruptions in chest compressions.

C. Initial defibrillation attempts should consist of three shocks with 360 J.

D. Early ACLS is the most crucial link in the "chain of survival."

E. None of the above.

6) Which of the following statements is *true*?

A. Coronary perfusion pressures of at least 5 mm Hg are associated with a higher rate of ROSC.

B. Phenylephrine is superior to epinephrine for treatment of VF.

C. The effectiveness of epinephrine is thought to be due to its α_2 effects.

D. Epinephrine is associated with a higher incidence of hospital discharge than norepinephrine is.

E. None of the above.

7) Which of the following statements is *true*?

A. Vasopressin is shorter acting than epinephrine.

B. The vasoconstrictor effect of vasopressin is due to its effects on α_1-receptors.

C. The dose of vasopressin for VF is 40 units every 3 to 5 minutes.

D. The effect of vasopressin can be blunted with metabolic acidosis.

E. Vasopressin has a more favorable effect than epinephrine on myocardial oxygen demand in the postresuscitative phase.

8) Which of the following is a potential adverse effect related to IV amiodarone?

A. Hypotension

B. Seizures

C. Torsade de pointes

D. Diarrhea

E. Hypokalemia

9) Which of the following is the drug of choice for torsade de pointes?

A. Adenosine

B. Amiodarone

C. Lidocaine

D. Magnesium sulfate

E. Procainamide

10) Which of the following statements is *true*?

A. Therapeutic hypothermia has no effect on the pharmacokinetics or pharmacodynamics of medications used in the postresuscitative setting.

B. Target temperatures for therapeutic hypothermia are 32°C to 34°C (89.6°F to 93.2°F) and should be maintained for 24 to 48 hours.

C. The goal of therapeutic hypothermia is protect from cerebral injury caused by destructive enzymatic reactions that occur following cardiac arrest.

D. There are no adverse effects associated with therapeutic hypothermia.

E. None of the above.

11) Which of the following is an acceptable therapy for asystole?

A. Atropine

B. Defibrillation

C. Amiodarone

D. Epinephrine

E. None of the above

12) Which of the following is a cause of PEA?

A. Hypovolemia

B. Drug overdose

C. Tension pneumothorax

D. Hypokalemia

E. All of the above

13) Which of the following is *not* a potentially harmful effect of sodium bicarbonate?

A. Tissue hypercarbia

B. Intracellular acidosis

C. Iatrogenic alkalosis

D. Hyperkalemia

E. Decrease in myocardial contractility

14) If IV access cannot be readily obtained, which of the following is the preferred alternative route for drug administration?

A. Endotracheal

B. Intraosseous

C. Intracardiac

D. Subcutaneous

E. None of the above

15) The first drug administered following electrical defibrillation following ventricular fibrillation is:

A. Epinephrine

B. Amiodarone

C. Lidocaine

D. Sodium bicarbonate

E. Atropine

Chapter 3 - Hypertension

Use the following scenario for the next two questions: A 78-year-old man has a past medical history of hypertension for10 years. His BP today is 158/72 mm Hg (156/70 mm Hg when repeated), heart rate is 60 beats/min, serum creatinine is 1.2 mg/dL, and potassium is 4.3 mEq/L. He is currently on lisinopril 40 mg daily and verapamil SR 240 mg daily, weighs 73 kg, is 70″ tall, smokes one pack cigarettes daily, and consumes two to three ethanol-containing drinks weekly.

1) Which of the following is the most appropriate recommendation to add to his antihypertensive regimen?

A. Amlodipine

B. Losartan

C. Indapamide

D. Metoprolol succinate

2) Which of the following lifestyle modifications is/are most reasonable to recommend in this patient to lower his BP?

A. Weight loss

B. Smoking cessation

C. Adopting a DASH eating plan

D. Decreasing ethanol consumption

Use the following scenario for the next two questions: A 37-year-old woman has a BP measurement of 190/120 mm Hg when she first arrives for a routine physical examination by a medical assistant. She has no previous history of hypertension, and the only other time she had been seen by her primary care physician, her BP was 120/80 mm Hg. She is extensively interviewed and examined, and has no signs of acute or chronic hypertension-associated target-organ damage. Her physician measures her BP again 20 minutes later, and it is 142/92 mm Hg (140/90 mm Hg when repeated). Based on her most recent fasting lipid panel, her Framingham risk score is 1%.

3) Which of the following is the most accurate clinical assessment of her present situation?

A. Prehypertension

B. Elevated blood pressure

C. Stage 1 hypertension

D. White coat hypertension

4) Which of the following is the most appropriate BP goal in this patient?

A. <120/80 mm Hg

B. <130/80 mm Hg

C. <140/80 mm Hg

D. <140/90 mm Hg

Use the following scenario for the next two questions: A 60-year-old woman with hypertension and heart failure with preserved ejection fracture is seen 2 months after experiencing an acute myocardial infarction. She also has a history of dyslipidemia. Her present BP is 130/84 mm Hg (132/82 mm Hg when repeated) and her heart rate is 60 beats/min. Her serum creatinine is 1.1 mg/dL, serum potassium is 3.5 mEq/L, and spot urinalysis shows 20 mg albumin/g creatinine. She currently has no peripheral or pulmonary edema. She is taking furosemide 40 mg twice daily, carvedilol 25 mg twice daily, enalapril 20 mg twice daily, and pravastatin 20 mg daily.

5) Which of the following medical conditions is/are a compelling indication(s) for the use of carvedilol in this patient?

A. Heart failure

B. Recent MI

C. Chronic kidney disease

D. Dyslipidemia

6) Which of the following statements is most appropriate to include when counseling this patient regarding her antihypertensive therapy?

A. It will be possible to stop enalapril once your BP is at goal.

B. If you experience depression, stop taking carvedilol.

C. Long-term benefits of these medications are a reduced risk of CV events.

D. If you experience dry cough, stop taking lisinopril because this can lead to angioedema.

7) Which of the following statements is/are true regarding ARBs in the treatment of hypertension?

A. ARBs are first-line agents because they lower BP and lower risk of CV events.

B. The ALLHAT study showed that nonfatal MI and coronary heart disease are reduced more with ARB therapy than with amlodipine or chlorthalidone.

C. ARBs are preferred over ACE inhibitors in patients with chronic kidney disease.

D. An ACE inhibitor should be added to ARB therapy in patients with hypertension who are not yet at their BP goal value.

8) Which of the following is true regarding prehypertension?

A. All patients with BP values greater than 120/80 mm Hg are classified as prehypertension.

B. Guidelines recommend lifestyle modifications in all patients with prehypertension.

C. Less than 50% of patients with prehypertension develop hypertension within their lifetime.

D. Patients with prehypertension have equal CV risk compared to patients with normal BP values.

Use the following case for the next two questions: A 70-year-old woman with hypertension and type 2 diabetes has been on hydrochlorothiazide 25 mg daily and diltiazem extended release 240 mg daily for 6 years. She was on lisinopril several years ago, but it was stopped due to a dry cough. She was first diagnosed with hypertension when her blood pressure was 180/82 mm Hg. Today, her blood pressure is 158/78 mm Hg (160/76 mm Hg when repeated) and her heart rate is 100 beats/min. Her urinalysis shows 100 mg albuminuria/24 hours, serum creatinine is 1.6 mg/dL, potassium is 4.1 mEq/L, weight is 75 kg, and height is 66″. Her only complaint is headache.

9) Which of the following is/are routine monitoring parameters for her antihypertensive drug therapy?

A. Heart rate

B. Serum potassium, sodium, and magnesium

C. Serum creatinine and BUN

D. All of the above

10) Losartan 50 mg daily is added to her regimen. Four weeks later, her BP is 146/82 and 148/80 mm Hg, serum creatinine is 1.9 mg/dL, and potassium has increased to 4.4 mEq/L. Which of the following is the most appropriate option to treat this patient's hypertension?

A. Increase losartan to 100 mg daily.

B. Increase hydrochlorothiazide to 50 mg daily.

C. Add spironolactone 25 mg daily.

D. Decrease losartan to 25 mg daily.

11) Which of the following is true regarding the use of arterial vasodilators (hydralazine or minoxidil) in the treatment of hypertension?

A. Severe bradycardia occurs when they are used in combination with a β-blocker.

B. Both can cause severe rebound hypertension when stopped abruptly.

C. Both are poorly tolerated because of anticholinergic side effects.

D. Both should be given in combination with a diuretic and a β-blocker.

12) A 65-year-old woman with type 2 diabetes, hypertension, osteoporosis, and atrial fibrillation has a BP of 150/96 mm Hg (150/90 mm Hg when repeated), heart rate of 68 beats/min, potassium of 3.2 mEq/L, and a serum creatinine of 2.3 mg/dL. She reports an

allergy to hydrochlorothiazide (severe gout). Presently, she is on diltiazem CD 360 mg daily. Which of the following drug regimens would be the most appropriate to add to her regimen?

A. Chlorthalidone 12.5 mg daily
B. Amlodipine 5 mg daily
C. Atenolol 25 mg daily
D. Valsartan 160 mg daily

13) Which of the following is preferred as add-on therapy for a patient who is post-MI (1 month ago) with a BP of 146/88 mm Hg (144/86 mm Hg when repeated) while treated with metoprolol succinate 200 mg daily?

A. Chlorthalidone
B. Verapamil
C. Amlodipine
D. Lisinopril

14) Which of the following is preferred as initial antihypertensive therapy for a 63-year-old woman who is diagnosed with hypertension and has a history of ischemic stroke (6 months ago), with a BP of 186/108 mm Hg (184/106 mm Hg when repeated)?

A. A thiazide diuretic with an ACE inhibitor
B. A thiazide diuretic with a nonselective β-blocker
C. A thiazide diuretic alone
D. An ACE inhibitor with an ARB

15) A 52-year-old man has a past history of chronic stable angina and hypertension. He is experiencing ischemic chest pain twice weekly while being treated with atenolol 100 mg daily. His BP is 146/90 mm Hg (144/92 mm Hg when repeated), and heart rate is 58 beats/min. Which of the following is the most appropriate agent to add in this patient?

A. Lisinopril 20 mg daily
B. Diltiazem SR 180 mg daily
C. Amlodipine 5 mg daily
D. Irbesartan 150 mg daily

Use the following case for the next three questions: A 69-year-old woman with a history of angioedema (from lisinopril), hypertension, and type 2 diabetes is currently receiving hydrochlorothiazide 25 mg daily and carvedilol 25 mg twice daily. Today her blood pressure is 138/82 mm Hg (138/84 mm Hg when repeated) and heart rate is 56 beats/min. Urinalysis shows 400 mg albumin/24 hours, serum creatinine is 1.2 mg/dL, potassium is 3.8 mEq/dL, weight is 90 kg, and height is 65″. She complains of heartburn, a dry cough, constipation, and fatigue when she exercises. She normally exercises three times per week, and follows a DASH eating plan.

16) Which of her complaints is most likely from one of her antihypertensive medications?

A. Heartburn

B. Dry cough

C. Constipation

D. Fatigue

17) Which of the following is the most appropriate modification to her regimen?

A. Decrease carvedilol to 12.5 mg twice daily and add enalapril.

B. Decrease carvedilol to 12.5 mg twice daily and add valsartan.

C. Replace hydrochlorothiazide with spironolactone and felodipine.

D. Replace carvedilol with valsartan.

18) The patient reports takes several nonprescription medications including aspirin 81 mg daily, a multivitamin daily, acetaminophen, and loratadine. She asks you if these are safe to take because of her hypertension. Which of the following is the most appropriate response?

A. You should stop taking these until you have discussed this with your primary care physician.

B. Acetaminophen can increase your blood pressure; you should use naproxen instead.

C. Loratadine can increase your blood pressure; you should use it only if needed.

D. These medications are generally safe to use in patients with hypertension.

19) A 55-year-old man with hypertension and no other chronic medical problems is currently treated with hydrochlorothiazide 50 mg daily, irbesartan 300 mg daily, carvedilol 25 mg twice daily, and amlodipine 10 mg daily. His BP is 144/96 mm Hg (146/94 mm Hg when repeated). He is adherent with all of these medications. Serum creatinine is 1.2 mg/dL, potassium is 4.2 mEq/L, and all other laboratory values are normal. Which of the following is the most appropriate to add to his regimen?

A. Terazosin 2 mg daily

B. Spironolactone 25 mg daily

C. Clonidine 0.1 mg twice daily

D. Chlorthalidone 12.5 mg daily

20) A patient with newly diagnosed hypertension asks you for advice on how to increase potassium as a lifestyle modification to lower BP. Which of the following is/are appropriate recommendations?

A. Increase your dietary intake of potassium-rich foods.

B. Start using nonprescription potassium supplements.

C. Ask your physician to prescribe prescription-strength potassium chloride.

D. Use liberal amounts of salt substitutes on your food

Chapter 4 - Chronic Heart Failure

The next two questions refer to the following case:

A 58-year-old white male with a 2-year history of heart failure secondary to an MI returns to the clinic for a routine followup. He continues to have fatigue and dyspnea on minimal exertion. His serum electrolytes, creatinine clearance, and other labs are within normal limits. His LVEF by echo is 35%. His cardiovascular drug regimen is unchanged over the previous 3 months except that digoxin was started 1 month ago. His current digoxin plasma concentration is 1.6 ng/mL (2 nmol/L) collected approximately 18 hours after his previous dose.

Enalapril 10 mg twice daily
Carvedilol 25 mg twice daily
Furosemide 40 mg twice daily
Digoxin 0.25 mg daily
Esomeprazole 25 mg daily
ASA 81 mg daily
Simvastatin 40 mg at bedtime

1) Which of the following is the most appropriate approach to his digoxin therapy?

A. Decrease the digoxin dose to 0.125 mg/day.
B. Decrease the digoxin dose to 0.0625 mg/day.
C. Discontinue digoxin.
D. No changes in digoxin therapy are indicated.

2) Which of the following would be the most appropriate recommendation to improve the long-term outcome of this patient?

A. Add hydralazine/isosorbide dinitrate 37.5 mg/20 mg three times daily.
B. Add amlodipine.
C. Add spironolactone.
D. Change enalapril to losartan.

3) Cough is an adverse effect associated with which of the following medications?

A. Bisoprolol
B. Candesartan
C. Ramipril
D. Eplerenone

4) Heart failure may be exacerbated by which of the following medications?

A. Metformin
B. Naproxen
C. Atorvastatin
D. Glyburide

5) Which of the following is true regarding use of *β*-blockers for treating heart failure?

A. All *β*-blockers are equally effective for the treatment of heart failure.

B. Only nonselective agents are effective.

C. Therapy should be initiated at the target dose and titrated down if not tolerated.

D. Therapy should be initiated in patients who are clinically stable without volume overload.

6) Which of the following adverse effects of captopril can be avoided by switching to valsartan?

A. Fetal toxicity

B. Renal insufficiency

C. Hyperkalemia

D. Cough

7) Which of the following is correct about *β*-blocker therapy in a patient with heart failure and LVEF = 50% (HFpEF)?

A. All patients with HFpEF should receive *β*-blockers to reduce mortality.

B. *β*-Blocker therapy can be used safely in this population but does not improve mortality.

C. ACE inhibitors are the only agents that have been shown to reduce mortality in the HFpEF population.

D. *β*-Blocker therapy is contraindicated in patients with HFpEF.

8) Which of the following is a risk factor for eplerenone-induced hyperkalemia?

A. Concomitant hydralazine therapy

B. Concomitant enalapril therapy

C. Concomitant torsemide therapy

D. Concomitant metformin therapy

9) Which of the following should be used to monitor diuretic therapy in patients with heart failure?

A. Daily weights, serum potassium, serum magnesium

B. B-type natriuretic peptide plasma concentrations

C. Hemoglobin A1C and fasting blood sugar

D. Fasting lipid profile

10) HFpEF is best characterized by which of the following statements?

A. It is caused by impaired contractility due to hypertension.

B. Patients with HFpEF have large increases in end-diastolic volume.

C. Only patients with HFpEF develop pulmonary edema.

D. Patients with HFpEF experience significant left ventricular pressure changes with relatively small changes in volume.

11) A patient with a history of hypertension was recently diagnosed with Stage C heart failure and a reduced LVEF. Current medications include sustained-release diltiazem 180 mg daily, digoxin 0.125 mg daily, and furosemide 40 mg daily. The patient's vital signs are currently: BP 145/90 and pulse 82. Which of the following changes should be recommended in this patient's drug therapy?

A. Increase diltiazem to 240 mg daily.

B. Add metolazone.

C. Discontinue diltiazem and initiate lisinopril and sustained-release metoprolol therapy.

D. Add valsartan to the present therapy.

12) What is the most appropriate vasodilator therapy for a patient with systolic heart failure who develops lisinopril-induced angioedema?

A. Ramipril

B. Valsartan

C. Amlodipine

D. Hydralazine/nitrates

13) A 63-year-old female with Stage C heart failure and a LVEF of 25% is currently taking lisinopril 20 mg daily, furosemide 40 mg twice daily, digoxin 0.125 mg daily, and carvedilol 3.125 mg twice daily. Today, she presents with increasing shortness of breath, fatigue, and ankle swelling. She also reports a 5-lb weight gain over the past week. Her labs are significant for serum potassium of 5.2 mEq/L (5.2 mmol/L) and serum creatinine of 2.2 mg/dL (194 µmol/L). Which of the following interventions is most appropriate?

A. Increase the dose of furosemide to 80 mg twice daily.

B. Increase the dose of carvedilol to 6.25 mg twice daily.

C. Start spironolactone 12.5 mg daily.

D. Increase the dose of digoxin to 0.25 mg daily.

14) A patient with systolic heart failure is in normal sinus rhythm and is currently receiving an ACE inhibitor, β-blocker, digoxin, and loop diuretic. In spite of these therapies, the patient continues to experience symptoms. Vital signs are BP 120/75 mm Hg and pulse 82. Estimated creatinine clearance is 62 mL/min (1.03 mL/s), and other labs are within normal limits. Which of the following would be the most appropriate medication to add?

A. Spironolactone

B. Valsartan

C. Amlodipine

D. Diltiazem

15) A female patient with HFpEF also has diabetes, hypertension, hyperlipidemia, asthma, and atrial fibrillation. Currently, her vital signs are: HR 118 and BP 128/85 mm Hg. Her current labs include serum creatinine 1.0 mg/dL (88 µmol/L), serum potassium 4.3 mEq/L (4.3 mmol/L), and HgbA1c 6.8% (0.68; 51 mmol/mol Hgb). Current medications include hydrochlorothiazide 25 mg every morning, lisinopril 10 mg daily, atorvastatin 20 mg daily, aspirin 81 mg daily, metformin 1,000 mg twice daily, Advair 250/50 one puff twice daily, and albuterol when needed. Which of the following is the most appropriate medication to add at this time?

A. Metoprolol 25 mg twice daily

B. Furosemide 20 mg daily

C. Diltiazem 120 mg daily

D. Spironolactone 25 mg daily

Chapter 5 - Acute Decompensated Heart Failure

The next two questions refer to the following case: A 58-year-old male with a history of ischemic cardiomyopathy presents to a clinic with orthopnea, dyspnea with minimal exertion, 3+ pitting edema, fatigue, anorexia, nausea, and early satiety.

1) These signs and symptoms are consistent with

A. Fluid overload only

B. Low cardiac output only

C. Both fluid overload and low cardiac output

D. Neither fluid overload or low cardiac output

2) This patient is admitted and a Swan-Ganz catheter is placed. The pulmonary capillary wedge pressure (PCWP) is 28 mm Hg and the cardiac index is 1.8 L/min/m^2 (0.03 L/s/m^2). These hemodynamic values are consistent with which one of the following subsets?

A. I

B. II

C. III

D. IV

3) All of the following therapeutic options would be reasonable to overcome diuretic resistance in a patient currently taking furosemide 40 mg orally twice daily *except*

A. Changing to spironolactone 25 mg daily

B. Increasing the dose of furosemide to 80 mg orally twice daily

C. Changing to furosemide 40 mg IV twice daily

D. Adding metolazone 2.5 mg orally twice daily

4) A patient is admitted with decompensated chronic heart failure. The patient's current medications include lisinopril 20 mg daily, furosemide 40 mg twice a day, metoprolol CR/XL

200 mg daily, and digoxin 0.125 mg daily. The patient has been stable on these doses for the previous 4 months. It is decided that positive inotropic therapy is indicated, along with IV diuretics. Which of the following would you recommend?

A. D/C metoprolol and start dopamine

B. D/C metoprolol and start dobutamine

C. Start dobutamine

D. Start milrinone

The next two questions refer to the following case: A 57-year-old African American male with ischemic cardiomyopathy (ejection fraction [EF] 25% [0.25]) presenting to the emergency department (ED) with an acute heart failure (HF) exacerbation. His vital signs include BP 103/77 mm Hg, HR 92 bpm, RR 23 rpm, and O2 sat 91% (0.91) on 4 L by nasal cannula. Physical examination reveals jugular venous distension (JVD), crackles at bases, ascites, and trace bilateral lower extremity edema. He admits to a 10 lb (4.5 kg) weight gain in the past 2 weeks since his metoprolol dose was increased and reports strict adherence to both dietary restrictions and medications. In the ED, he has already received furosemide 160 mg IV × 1 dose with minimal response in urine output. Pertinent labs include potassium 5.1 mEq/L (5.1 mmol/L), brain natriuretic peptide (BNP) 950 pg/mL (275 pmol/L), blood urea nitrogen (BUN) 41 mg/dL (14.6 mmol/L), and serum creatinine (SCr) 2.2 mg/dL (194 µmol/L) (baseline). The patient's medications on admission include lisinopril 10 mg daily, metoprolol XL 150 mg daily, and furosemide 120 mg twice daily.

5) Which of the following should occur with this patient's therapy?

A. Continue metoprolol at current dose

B. Discontinue metoprolol immediately

C. Reduce metoprolol to last tolerated dose

D. Change metoprolol to atenolol

6) Which of the following would be appropriate to manage this patient's fluid overload?

A. Initiate furosemide 160 mg IV twice daily

B. Initiate furosemide 240 mg IV twice daily

C. Initiate furosemide 160 mg IV plus metolazone 5 mg by mouth daily

D. Initiate furosemide 5 mg/h IV continuous infusion

The next three questions refer to the following case: A 63-year-old female with hypertensive cardiomyopathy (EF 30–35% [0.30 – 0.35]) presents with a chief complaint of "always feeling tired." Her daughter reported that the patient's exercise tolerance has recently significantly declined despite strict adherence to a low sodium diet and currently prescribed medications that include enalapril 7.5 mg twice daily, carvedilol 12.5 mg twice daily, furosemide 80 mg twice daily, and digoxin 0.125 mg daily. Vital signs include BP 92/57 mm Hg, HR 95 bpm, (mild orthostasis), and RR 16 rpm. On physical examination, she has no findings consistent with fluid overload. Laboratory analysis reveals sodium 135 mEq/L (135 mmol/L), potassium 4.9 mEq/L (4.9 mmol/L), BUN 45 mg/dL (16.1 mmol/L), and SCr 2.2

mg/dL (194 µmol/L) (baseline BUN/SCr 27/1.1 [SI: 9.6/97]). Upon further questioning, the patient does admit to occasional dizziness.

7) Which one of the following clinical categories best describes this patient?

A. Warm and dry

B. Warm and wet

C. Cold and dry

D. Cold and wet

8) Which of the following laboratory parameters would assist with confirming the fluid status of this patient?

A. C-reactive protein

B. Brain natriuretic peptide

C. Serum albumin

D. Hemoglobin

9) Which one of the following is the optimal initial intervention for this patient?

A. Change furosemide to 80 mg IV twice daily

B. Hold furosemide and initiate cautious hydration with IV fluids

C. Hold carvedilol and initiate dobutamine at 2 mcg/kg/min

D. Increase carvedilol to 25 mg by mouth twice daily

The next two questions refer to the following case:
An 84-year-old white male with ischemic cardiomyopathy (EF 20% to 25% [0.20 to 0.25]) presents to the hospital with acute decompensated heart failure (ADHF). Vital signs include BP 89/55 mm Hg, HR 93 bpm (no orthostasis present), and RR 20 rpm. Physical examination reveals JVD, +S3, bilateral rales throughout on lung auscultation, and 3+ bilateral edema to his thighs. Chest radiograph reveals pulmonary edema and pleural effusions. Hemodynamic measurements obtained by pulmonary artery catheter (PAC) include PCWP 28 mm Hg, cardiac index (CI) 1.7 L/min/m^2 (0.028 L/s/m^2), and systemic vascular resistance (SVR) 1,600 dyne s cm^{-5} (160 MPa s m^{-3}). His laboratory values are all normal, except BUN 34 mg/dL (12.1 mmol/L), and SCr 1.5 mg/dL (133 µmol/L) (baseline BUN/SCr 32 and 0.9 [SI: 11.4 and 80]). Medication on admission includes lisinopril 10 mg daily, bisoprolol 10 mg daily, bumetanide 2 mg twice daily, simvastatin 40 mg daily, and aspirin 81 mg/day.

10) Which one of the following are appropriate initial therapies for this patient?

A. Furosemide 80 mg IV twice daily

B. Furosemide 80 mg IV twice daily plus nesiritide 0.01 mcg/kg/min

C. Furosemide 20 mg/h IV continuous infusion

D. Nesiritide 0.01 mcg/kg/min IV continuous infusion

11) Once this patient's volume status is optimized, his CI and SVR have not changed substantially, and his vital signs and oral heart failure medications remain essentially

unchanged with the exception of his diuretic dose. Which of the following therapies are now appropriate to manage this patient's ADHF?

A. Nitroprusside 0.01 mcg/kg/min IV continuous infusion

B. Enalaprilat 2.5 mg IV every 6 hours

C. Dobutamine 2 mcg/kg/min IV continuous infusion

D. Milrinone 0.1 mcg/kg/min IV continuous infusion

Chapter 6 - Ischemic Heart Disease

1) Which of the following are potential clinical manifestations of atherosclerotic disease?

A. Limb ischemia

B. Myocardial infarction

C. Stroke

D. All of the above

2) Which of the following features are typical of cardiac chest pain?

A. Reproducible to palpation

B. Precipitated by a meal

C. Associated with pressure or tightness

D. All of the above

3) Which of the following patient descriptions would indicate a cardiac chest pain that has progressed from stable to unstable angina?

A. "I get this pain occasionally while mowing the yard and it usually goes away after I sit down for a few minutes"

B. "This just started a couple weeks ago. The first time it happened while I was helping my friend move some heavy furniture but now it happens three or four times a day while I am walking"

C. "I get this pain on the left side of my chest. It usually happens late at night after I have gone to bed. Tums seem to help along with sitting upright for 30 minutes"

D. "I was outside gardening this morning when it hit me. I took a nitroglycerin and it knocked it out right away"

4) RG is a 68–year-old female who presents to the clinic c/o chest pain. It occurs while she is gardening and is relieved with rest. She has a PMH of HTN. Current meds include metoprolol 25 mg twice daily and HCTZ 25 once daily. Current vitals are: BP: 128/78, P: 70, and RR: 12. Which of the following treatments would be appropriate for this patient?

A. Increase metoprolol to 50 mg twice daily

B. Start aspirin 81 mg once daily

C. Start amlodipine 2.5 mg once daily

D. A and B

5) Which of the following is an adverse effect of immediate release nifedipine that limits its use for chronic stable angina?

A. Tachycardia

B. Bradycardia

C. Hypertension

D. Hypotension

6) Which of the following combinations of antianginal drugs is contraindicated due to a drug–drug interaction?

A. Verapamil and ranolazine

B. Diltiazem and isosorbide dinitrate

C. Metoprolol and isosorbide dinitrate

D. Metoprolol and amlodipine

7) Which of the following counseling point quotes for sublingual nitroglycerin contains *incorrect* information?

A. "It's ok to put a few in a clear Ziploc sandwich bag to pack for a trip"

B. "You can take one every 5 min for up to three doses"

C. "Place it under your tongue and allow it to dissolve"

D. "Call EMS if a third dose is required"

8) Which of the following statements regarding clopidogrel and prasugrel is correct?

A. Clopidogrel has a faster onset than prasugrel

B. Clopidogrel is more potent than prasugrel

C. Clopidogrel causes more bleeding than prasugrel

D. None of the above are correct

9) How long should clopidogrel be given along with aspirin after angioplasty and drug eluting stent placement?

A. 1 day

B. 1 week

C. 1 month

D. 6 months

E. 1 year

10) If a patient with angina can walk no more than one to two blocks or climb one flight of stairs at a normal pace, the patient would be classified as:

A. Class I

B. Class II

C. Class III

D. Class IV

11) Which one of the following would increase oxygen demand and potentially precipitate angina?

A. Anemia

B. Hyperthyroidism

C. Sickle cell disease

D. Hypoxemia

E. Hyperviscosity

12) Which one of the following should not be used in the treatment of variant (Prinzmetal's angina)?

A. Nifedipine

B. Isosorbide mononitrate

C. Metoprolol

D. Diltiazem

E. Verapamil

13) Which one of the following is the recommended initial drug therapy for angina once as needed use of nitroglycerin is no longer adequate?

A. *β*-blockers

B. Nitrates

C. Calcium channel blockers

D. ACEI

E. Clopidogrel

14) Ranolazine should be used as second- or third-line therapy after *β*-blockers and/or calcium channel blockers.

A. True

B. False

Chapter 7 - Acute Coronary Syndromes

1) Which of the following differentiates myocardial infarction (MI) from unstable angina (UA)?

A. Location of the coronary artery blockage

B. Quality of chest discomfort

C. Severity of coronary artery disease (CAD)

D. Elevated plasma troponin concentration

2) Which of the following characteristics describes a patient with acute coronary syndrome (ACS) who is at the highest risk of immediate death?

A. Heart rate of 80 beats/min

B. ST-segment depression and positive troponin

C. Prolonged PR interval

D. Blood pressure of 135/85 mm Hg

3) Which of the following is not a quality performance measure for acute myocardial infarction (AMI)?

A. Aspirin (ASA) administered within 24 hours of hospital arrival

B. An MRB administered to patients with a left ventricular ejection fraction (EF) of more than 40%

C. Fibrinolysis administered within 30 minutes of hospital arrival

D. Primary percutaneous coronary intervention (PCI) given within 90 minutes of hospital arrival

4) Which of the following antithrombotic drug therapies is the most appropriate regimen for a patient with stage 5 chronic kidney disease receiving primary percutaneous coronary intervention (PCI) to decrease mortality and prevent reinfarction?

A. ASA, unfractionated heparin (UFH), abciximab, reteplase

B. Ticagrelor, enoxaparin, eptifibatide

C. ASA, clopidogrel, streptokinase, bivalirudin

D. ASA, ticagrelor, bivalirudin

5) In a 60-kg (120-lb) patient with creatinine clearance of 35 mL/min and with non–ST-segment depression (NSTE) ACS receiving a conservative approach, which of the following is the preferred antithrombotic regimen, in addition to ASA and clopidogrel?

A. UFH infusion and eptifibatide IV infusion 2 mcg/kg/min

B. Enoxaparin 60 mg subcutaneous (SC) daily

C. Bivalirudin bolus plus infusion

D. Fondaparinux 2.5 mg SC once daily

6) In a patient with ST-segment elevation (STE) MI who presents to a hospital without the capacity to perform primary PCI and who is 2 hours since the onset of chest discomfort with BP 130/80 mm Hg, HR 88 beats/min, rales, S3 heart sound, ST-segment elevation, and positive troponin, what pharmacotherapy in addition to ASA and IV nitroglycerin (NTG) should be administered in the emergency department to treat symptoms, and prevent death, stroke, or reinfarction?

A. Clopidogrel, enoxaparin, ramipril, furosemide, reteplase

B. Clopidogrel, enoxaparin, eptifibatide, furosemide

C. Reteplase, UFH, metoprolol, enalapril

D. Alteplase, bivalirudin, furosemide, captopril

7) Which of the following is a contraindication to eplerenone in a patient with heart failure following MI?

A. LVEF less than 40%

B. Persistent angina

C. Angioedema to an angiotensin-converting enzyme (ACE) inhibitor

D. Serum potassium of 5.8 mmol/L

8) Which of the following statements regarding monitoring for adverse effects is correct?

A. Prasugrel—HR, angioedema

B. Spironolactone—serum creatinine (SCr), serum potassium

C. ASA—creatinine kinase, CBC

D. Fondaparinux—activated partial thromboplastin time, SCr

9) Which of the following drug–adverse effects pairs is correct?

A. ACE inhibitor–bradycardia

B. Clopidogrel–angioedema

C. Diltiazem–thrombocytopenia

D. Alteplase–bleeding

10) Which of the following anticoagulants is preferred for PCI in a patient with a history of heparin-induced thrombocytopenia and ACS?

A. Dalteparin

B. Enoxaparin

C. Bivalirudin

D. Fondaparinux

11) Which of the following is the correct coagulation monitoring goal for a patient with ACS receiving enoxaparin?

A. Activated partial thromboplastin time (aPTT) 2 to 3 times control

B. aPTT 50 to 70 seconds

C. Activated clotting time less than 32 seconds

D. No coagulation goal recommended

12) Which of the following best describes a patient with ACS who is a candidate for treatment with amlodipine added to β-blocker?

A. Continued chest discomfort despite nitrates and atenolol

B. Acute heart failure while receiving metoprolol

C. HR of 80 beats/min and BP of 150/90 mm Hg while receiving low-dose metoprolol and enalapril

D. Stable chronic obstructive pulmonary disease receiving a low-dose β-blocker

13) In clinical trials, administering a statin prior to PCI resulted in reduction in which of the following major adverse cardiac events?

A. Cardiovascular mortality

B. Stroke

C. Myocardial infarction

D. All-cause mortality

14) Eplerenone decreases which of the following after MI?

A. Mortality

B. Stroke

C. Atrial fibrillation

D. All of the above

15) Which of the following has not been shown to reduce mortality following myocardial infarction?

A. Fibrinolytics

B. ACE inhibitors

C. Nitrates

D. ASA

Chapter 8 - The Arrhythmias

1) You are following a patient who is receiving chronic oral amiodarone. Which of the following statements regarding monitoring of drug-induced toxicities is *correct*?
I. Thyroid function tests should be monitored every 3 months.
II. Pulmonary function tests should be monitored on an annual basis.
III. Liver function tests should be monitored every 6 months.

A. I only

B. III only

C. I and II only

D. II and III only

E. I, II, and III

2) Which of the following electrophysiologic properties does propafenone possess?

A. Vaughan-Williams class III only

B. Vaughan-Williams class Ib only

C. Vaughan-Williams class Ic and II

D. Vaughan-Williams class Ia and IV

3) The class Ic antiarrhythmics, such as flecainide, slow conduction velocity through sodium-dependent tissue the most at normal heart rates. The reason for this is that flecainide does which of the following?

A. It has “slow on/off” kinetics for the sodium channel.

B. It has “fast on/off” kinetics for the sodium channel.

C. It has rate-dependent effects in blocking the sodium channel.

D. It blocks the sodium channel primarily in the inactivated state.

4) You are asked to see a patient with new-onset AF, a rapid ventricular response (HR = 179 beats/min), and thyrotoxicosis. Currently, his only symptoms are weakness and palpitations. Which of the following do you suggest as *initial* therapy?

A. IV digoxin to control his ventricular rate

B. IV ibutilide to restore sinus rhythm

C. IV esmolol to control his ventricular rate

D. IV amiodarone to control his ventricular rate

5) A 56-year-old woman with a PMH of HF (LVEF = 30%) and paroxysmal AF is receiving the following medications: digoxin 0.25 mg by mouth daily (last digoxin level 1.1 ng/mL [1.4 nmol/L]), warfarin 6 mg by mouth daily (INR 2 to 3 for the past 4 weeks), enalapril 10 mg by mouth twice daily, furosemide 40 mg by mouth daily, and metoprolol XL 50 mg by mouth daily. The physician would like to attempt to restore and maintain sinus rhythm with oral amiodarone. Which of the following recommendations should you make regarding the management of this patient?
I. To avoid the drug interactions, use flecainide instead of amiodarone.
II. Decrease the warfarin dose to 4 mg by mouth daily.
III.Decrease the digoxin dose to 0.125 mg by mouth daily

A. I only

B. III only

C. I and II only

D. II and III only

E. I, II, and III

6) Based on the results of the AFFIRM, RACE, STAF, PIAF, and HOT-CAFE trials, which of the following statements regarding the initial management of a patient with AF is*correct*?

A. It would be reasonable to initially use a “rate-control” strategy with digoxin, nondihydropyridine calcium blockers, and/or *β*-blockers.

B. It would be reasonable to initially use a “rhythm-control” strategy with low-dose amiodarone in order to maintain sinus rhythm.

C. It would be reasonable to initially use a “rhythm-control” strategy with sotalol in order to maintain sinus rhythm.

D. It would be reasonable to initially use a “rate-control” strategy with low-dose amiodarone.

7) A 54-year-old man (5′9″, 175 lb [175 cm, 79.5 kg]) presents to the emergency department complaining of worsening palpitations, shortness of breath, and fatigue. He has a history of MI (5 months ago), HF (LVEF = 25% [≤0.25]), paroxysmal AF, and pulmonary fibrosis secondary to amiodarone (occurred 1 year ago). His current medications include aspirin, lisinopril, furosemide, carvedilol, atorvastatin, digoxin, and warfarin. His vitals are BP 115/70 mm Hg and HR 72 beats/min. Pertinent labs include SCr 1.3 mg/dL (115 µmol/L), digoxin 0.6 ng/mL (0.8 nmol/L), and INR 2.6. His ECG reveals: AF, HR 70 beats/min, and QT interval 400 milliseconds. He undergoes successful electrical cardioversion and is now in sinus rhythm. The plan is to start chronic antiarrhythmic therapy to maintain him in sinus rhythm. Which of the following antiarrhythmic drugs would be most appropriate to maintain him in sinus rhythm?

A. Amiodarone

B. Dofetilide

C. Flecainide

D. Sotalol

8) Which of the following drugs would be most appropriate to restore sinus rhythm in a patient with AV nodal reentry or orthodromic AV reentry?

A. Adenosine

B. Procainamide

C. Lidocaine

D. Digoxin

9) A 19-year-old woman with a history of WPW syndrome is seen in the emergency room. She has no other medical problems or known heart disease. Her current ECG shows a wide QRS tachycardia (irregular) (HR = 178 beats/min). Her BP is stable and she does not feel syncopal. Which of the following agents would be the most appropriate to administer to this patient at this time?

A. IV adenosine

B. IV verapamil

C. IV procainamide

D. IV lidocaine

10) A 79-year-old man with a past medical history of hypertension and dyslipidemia presents to clinic complaining of dizziness and palpitations that have been occurring for the past 2 to 3 days. An ECG reveals that he is in AF (HR = 120 beats/min). Which of the following drug regimens would be most appropriate for stroke prevention in this patient?

A. Aspirin 325 mg by mouth daily.

B. Warfarin (titrated to an INR of 2 to 3).

C. Low-dose warfarin (titrated to an INR 1.2 to 1.5) and aspirin 325 mg by mouth daily.

D. This patient does not need antithrombotic therapy and should be cardioverted immediately.

11) Which of the following is *not* consistent with the clinical profile of drug-induced torsade de pointes?

A. Females are at higher risk.

B. It usually occurs within several days of initiating the offending agent.

C. It is always dose related (i.e., large doses = higher risk).

D. It often occurs in association with underlying heart disease and electrolyte abnormalities.

12) Which of the following statements regarding the results of clinical trials performed with oral antithrombotic agents in patients with AF is *correct*?

A. Bleeding was less likely to occur with dabigatran 75 mg by mouth twice daily than warfarin in the RE-LY trial.

B. Warfarin was superior to dabigatran 150 mg by mouth twice daily in preventing stroke or systemic embolism in the RE-LY trial.

C. Rivaroxaban was noninferior to aspirin in preventing stroke or systemic embolism in the ROCKET-AF trial.

D. Stroke or systemic embolism was significantly reduced with apixaban compared with aspirin in the AVERROES trial.

13) A patient suffers a cardiac arrest and was successfully resuscitated at the local airport by an automated external defibrillator. He is transported to your hospital and admitted to the coronary care unit. His cardiac enzymes are markedly elevated and demonstrate that he had an MI. Which of the following would be the most appropriate chronic treatment strategy for this patient?

A. Implantable cardioverter-defibrillator

B. Empiric oral amiodarone

C. Revascularization (if possible) and then chronic oral metoprolol

D. Electrophysiologic testing to see if the patient has sustained ventricular tachycardia or fibrillation

14) A 65-year-old man has a history of MI (6 months ago; current EF = 25% [0.25]) and recurrent sustained ventricular tachycardia. During his electrophysiologic study, he experienced inducible sustained ventricular tachycardia (rate = 240 beats/min) that caused

him to pass out. Which of the following would be the most appropriate treatment for this patient's arrhythmia?

A. Radio-frequency ablation of the Kent bundle

B. Implantable cardioverter-defibrillator

C. Chronic sotalol therapy

D. No therapy at present—close followup only

15) A 55-year-old woman with a history of AF is admitted for pharmacologic cardioversion. In the coronary care unit, she is given 2 mg of IV ibutilide that terminates the AF. However, shortly thereafter, she suffers several long episodes of polymorphic ventricular tachycardia with a prolonged QT interval during sinus rhythm. Which of the following would be the most appropriate treatment for this arrhythmia?

A. IV epinephrine 1 mg

B. IV amiodarone 300 mg

C. IV lidocaine 100 mg

D. IV magnesium 2 g

Chapter 9 - Venous Thromboembolism

1) Mr. Jones is a healthy 37-year-old man who presents to the medical office complaining of swelling and pain in his left calf. Three days ago Mr. Jones participated in a softball game and was involved in a collision at home plate. The pain is localized in the left calf. The left calf measures 16 cm and the right calf measures 15 cm. There is no edema present. Mr. Jones is 5 ft 11 in (180 cm) tall and weighs 100 kg. Which of the following strategies would be the most appropriate in the initial management for Mr. Jones?

A. Obtain a compression ultrasound of the left lower extremity to rule out DVT.

B. Order a D-dimer to rule out DVT.

C. Order a D-dimer and obtain a compression ultrasound of the left lower extremity to rule out DVT.

D. Administer 5,000 units of unfractionated heparin IV and obtain a compression ultrasound of the lower extremity as soon as possible.

2) Which of the following patients would be at greatest risk for developing a DVT in the next month?

A. A 23-year-old male admitted to the ICU in diabetic ketoacidosis with mental status changes

B. A 59-year-old male with three-vessel coronary artery disease who smokes two packs of cigarettes per day

C. A 46-year-old female undergoing an abdominal hysterectomy due to irregular menses

D. A 78-year-old obese female with severe osteoarthritis for the past 15 years who will have an elective knee replacement tomorrow

3) Which of the signs or symptoms listed below are the least consistent with the diagnosis of DVT?

A. The examiner feels a palpable cord in the patient's right leg.

B. The patient's right and left ankles are very swollen.

C. The patient complains of pain in the right leg when flexing the right foot.

D. The patient's left leg appears red and feels hot.

4) Three months of anticoagulation would be the best choice to minimize the risk of recurrent VTE in which of the following circumstances?

A. A 56-year-old man with diabetes who had a DVT following hip replacement surgery

B. A 62-year-old woman receiving chemotherapy for colon cancer who had a DVT following a long car trip

C. A 42-year-old man with heterozygous factor V Leiden and prothrombin 20210 mutation who had an idiopathic PE

D. A 75-year-old woman who had a recurrent episode of DVT 4 years after completing 3 months of anticoagulation for a DVT that complicated knee replacement surgery

5) Which of the following statements best describes the use of graduated compression stockings for VTE prophylaxis following surgery?

A. Compression stockings are a relatively expensive strategy.

B. Compression stockings are poorly tolerated by the majority of patients.

C. Compression stockings are an acceptable strategy for the patients at high risk for bleeding.

D. Compression stockings should not be used in combination with anticoagulant drugs.

6) Which of the following statements best describes warfarin?

A. Warfarin interferes with the production of protein C in the liver.

B. Warfarin should never be used in combination with other anticoagulant drugs.

C. Although it has a long half-life, warfarin produces its anticoagulation effect rapidly.

D. Warfarin is effective for the long-term treatment of VTE but is not useful for VTE prophylaxis.

7) Low-dose unfractionated heparin (5,000 units subcutaneously every 12 hours) would be the best choice to prevent VTE for which of following patients?

A. A 77-year-old male receiving a hip fracture repair following an automobile accident

B. A 42-year-old female undergoing an abdominal hysterectomy for ovarian cancer

C. A 51-year-old male with benign prostatic hyperplasia and undergoing an abdominal prostatectomy

D. A 28-year-old female with a history of recurrent DVT undergoing bowel resection surgery for severe Crohn's disease

8) Which of the following statements best describes the low-molecular-weight heparins (LMWHs)?

A. The LMWHs are direct inhibitors of thrombin formation.

B. The LMWHs are preferred in patients with a history of heparin-induced thrombocytopenia.

C. The LMWHs are poorly absorbed following subcutaneous administration.

D. The LMWHs are a preferred option for treating VTE in pregnant women.

9) Which of the following statements best describes unfractionated heparin (UFH)?

A. UFH molecules with fewer than 18 saccharide units possess no anticoagulant activity.

B. UFH should be given in significantly lower doses to patients with liver disease.

C. UFH is rapidly and completely absorbed when administered subcutaneously in doses of 5,000 units or less.

D. UFH produces an unpredictable anticoagulant response.

10) Which of the following individuals would be the best candidate for outpatient DVT treatment?

A. A 64-year-old male who uses insulin to control his diabetes

B. A 44-year-old female with a recent history of IV drug abuse

C. A 92-year-old male with severe rheumatoid arthritis–limited social support

D. A 53-year-old female who complains of leg pain, swelling, and shortness of breath

11) In addition to starting warfarin therapy, which of the following would be the best *initial* acute treatment choice for a 57-year-old, 180-kg male who has a proximal DVT and no other comorbid conditions?

A. Enoxaparin 150 mg subcutaneously twice daily

B. Rivaroxaban 20 mg orally once daily

C. Fondaparinux 10 mg subcutaneously once daily

D. Enoxaparin 360 mg subcutaneously once daily

12) A 71-year-old female taking warfarin for the past 2 months for a DVT following a hip replacement surgery comes to clinic today. The patient's INR is 6.4. Her vital signs are stable, she has no complaints, she is fully ambulatory, and there is no evidence of bleeding. Which of following interventions would be the best management strategy at this point in time?

A. Omit the next two doses of warfarin and recheck INR in 3 days.

B. Administer vitamin K 2.5 mg orally, omit next dose of warfarin, and recheck INR in 7 days.

C. Administer clotting factor concentrates, omit next dose of warfarin, and recheck INR in 24 hours.

D. Administer vitamin K 1.25 mg orally, omit the next dose of warfarin, and recheck INR in 24 hours.

13) Which of the following individuals would be at the greatest risk for bleeding if given warfarin therapy?

A. An 81-year-old woman with frequent tonic–clonic seizures who had neurosurgery last week

B. A 54-year-old man with well-controlled high blood pressure who enjoys cross-country skiing on weekends

C. A 74-year-old woman with poorly controlled diabetes mellitus type 2 who drinks one glass of wine with dinner

D. A 42-year-old man with coronary artery disease who takes aspirin 81 mg daily and who participates in a daily exercise program at the gym

14) Ms. Smith is a 67-year-old female who has had recurrent DVT and has been taking warfarin for the past 3 years. Her last six INR values have been within her goal range. Today, the patient's INR is 1.2. Which of the following would be the best explanation for the low INR?

A. Ms. Smith forgot her dose of warfarin this morning.

B. Ms. Smith drank tomato and carrot juice for breakfast this morning.

C. Ms. Smith ate a large spinach salad for dinner day before yesterday.

D. Ms. Smith finished a 10-day course of trimethoprim for a urinary tract infection yesterday.

15) A patient is initiating dalteparin subcutaneously and warfarin orally for the treatment of DVT on an outpatient basis. Which of the following laboratory monitoring plans is best to determine response and toxicity to this drug treatment regimen?

A. Measure platelet count, aPTT, and INR daily.

B. Measure INR in 2 days and platelet count in 7 days.

C. Measure INR in 12 hours, aPTT in 4 days, and hemoglobin in 30 days.

D. Measure clotting time, serum creatinine, and liver function tests every 3 days.

Chapter 10 - Stroke

1) An 84-year-old Asian male is admitted to the hospital 4 hours after experiencing the onset of right-sided weakness and difficulty with speech. He has a past medical history of hypertension for 10 years.

Medications on admission: none

Review of systems: 5 ft 3 in, 125 lb, BP = 170/90, P = 90, EKG = NSR
Neurologic exam: mild R leg and arm weakness, expressive aphasia

Which of the following acute therapies has been shown to improve long-term outcome in a patient like the one presented above?

A. Aspirin
B. Subcutaneous heparin
C. Enoxaparin
D. tPA

2) Which of the following antiplatelet medications is associated with a high incidence of headache?

A. Warfarin
B. Aspirin
C. Clopidogrel
D. Aspirin + dipyridamole
E. Unfractionated heparin

3) Which of the following characteristics make(s) a stroke patient ineligible for IV thrombolysis?

A. Hemorrhage seen on CT of the head
B. Blood pressure >195/100
C. Time of onset >3 hours
D. A and B
E. A, B, and C

4) A 52-year-old African American female was brought to the emergency room after falling in the kitchen. The event was witnessed by her husband. She arrived at the ER 60 minutes after the onset of symptoms. She has a history of hypertension for 20 years, and hypothyroidism.

Medications on admission: hydrochlorothiazide 25 mg daily
Review of systems: 5 ft 4 in, 190 lb, BP = 200/100, P = 85, EKG = NSR
Neurologic exam: R-sided plegia, global aphasia, decreased alertness; NIHSS = 23
CT (head): no acute processes

Based on the data above, is the patient eligible for thrombolytic therapy with t-PA?

A. Yes
B. No

5) Which characteristic(s) of the patient described in Question #4 has/have been shown to *independently* increase her risk of developing a symptomatic intracerebral hemorrhage after t-PA?

A. Systolic blood pressure >170 mm Hg

B. Negative CT

C. African American

D. Severe stroke (NIHSS >20)

E. B and D

6) Which of the following is the *most common* cause of acute neurologic deterioration of an ischemic stroke patient in the first 3 days after the event?

A. Pulmonary embolism

B. Pneumonia

C. Cerebral edema

D. Recurrent ischemia

E. Dementia

7) Which of the following statements is true regarding clopidogrel?

A. It is an ADP receptor antagonist and prevents platelet activation.

B. Its antiplatelet effect is maximal within 60 minutes of oral administration of 75 mg.

C. It causes slightly more GI bleeding than ASA 325 mg/daily.

D. It is maximally effective when administered with ASA for secondary stroke prevention.

8) Which of the following patients may be a candidate for carotid endarterectomy?

A. An 80-year-old man with a history of TIA and 70% stenosis of the symptomatic internal carotid artery (ICA).

B. A 46-year-old woman with coronary artery disease and peripheral vascular disease, no history of TIA or stroke, with 45% stenosis of the L ICA and occlusion of the R ICA.

C. A patient with atrial fibrillation and intolerance to warfarin.

D. A 65-year-old man with a history of weakness on the R that lasted less than 10 minutes. He has 40% stenosis of his L ICA and 60% of his R ICA.

9) What is the target level of anticoagulation for a patient with atrial fibrillation who has recently experienced a minor stroke?

A. PT = 1.5 − 2.5 × control

B. INR = 1.8 − 2.5

C. INR = 2.5

D. PT = 2.5 − 3.5 × control

10) Choose the correct statement for the use of ERDP-ASA.

A. Dose is usually ERDP 50 mg/ASA 25 mg twice daily.

B. First choice in the primary prevention of TIAs.

C. First-line therapy for secondary prevention of noncardioembolic stroke.

D. Side effects occur rarely.

11) Which of the following categories would best describe a 78-year-old man with atrial fibrillation, poor left ventricular function, hypertension, and a TIA history?

A. Moderate risk for stroke

B. Low risk for stroke

C. High risk for stroke

D. No risk for stroke

E. Unable to determine due to lack of information

12) When should dabigatran be considered in patients who have had an ischemic stroke?

A. If atrial fibrillation and inability to afford warfarin therapy

B. If atrial fibrillation and age >80 years

C. If cardioembolic stroke and history of recent intracranial hemorrhage

D. If atrial fibrillation and poor adherence with warfarin

13) Pharmacogenetic testing for CYP2C9 polymorphisms may be helpful in:

A. Adjusting doses of clopidogrel

B. Initial dosing of clopidogrel

C. Choosing antiplatelet therapy for noncardioembolic stroke

D. Initial dose selection of warfarin

14) Thrombolytic therapy of acute ischemic stroke is indicated:

A. Prior to arrival in the ER

B. Only with streptokinase

C. If initiated within at least 4.5 hours of the acute event

D. If CT scan is positive for acute hyperintensity

15) Anticoagulation therapy for all TIA patients is generally acceptable now that clinical trials have shown it to be safe and effective.

A. True

B. False

Chapter 11 - Hyperlipidemia

1) Which one of the following is the best choice for the treatment of type I (Fredrickson-Levy-Lees classification) hyperlipidemia?

A. Rosuvastatin
B. Colestipol
C. Ezetimibe
D. Lovastatin
E. Dietary fat restriction

2) In the recently reported ARBITER 6-HALTS study, the risk of major cardiovascular events was reported to be 5% in the ezetimibe + state group compared with 1% in the niacin + statin group. What is the NNT for the niacin + statin group?

A. 5
B. 25
C. 37
D. 53
E. 81

3) Based on the National Cholesterol Education Program Adult Treatment Panel III definitions, what is defined as an HDL level that is low?

A. <40 mg/dL
B. 60 mg/dL
C. 130 mg/dL
D. 160 mg/dL
E. 190 mg/dL

4) Based on the National Cholesterol Education Program Adult Treatment Panel III definitions, what is the target LDL cholesterol in all patients?

A. <100 mg/dL
B. <130 mg/dL
C. <160 mg/dL
D. <190 mg/dL

5) All of the following are considered to be CHD risk equivalents *except*:

A. Asthma
B. Diabetes
C. Symptomatic carotid artery disease
D. Peripheral arterial disease
E. Abdominal aortic aneurysm

6) All of the following are considered to be traditional risk factors *except* (slide 56):

A. Cigarette smoking

B. Hypertension

C. HDL cholesterol >60 mg/dL

D. Males ≥45 years old

E. Family history of premature CHD

7) A patient presents with a total cholesterol of 245 mg/dL, an HDL of 35 mg/dL, and triglycerides of 350 mg/dL. What is the non-HDL concentration?

A. 105 mg/dL

B. 140 mg/dL

C. 210 mg/dL

D. 240 mg/dL

E. 545 mg/dL

8) Which one of the following has the mechanism of action of upregulating LDL receptors and interfering with the synthesis of cholesterol?

A. Niacin

B. Fibrates

C. Bile acid binding resins

D. Statins

E. Cholesterol absorption inhibition

9) Which category of drug therapy can raise HDL the most?

A. Niacin

B. Fibrates

C. Bile acid binding resins

D. Statins

E. Cholesterol absorption inhibition

10) Which one of the following states is the most potent LDL-lowering drug?

A. Lovastatin

B. Pravastatin

C. Rosuvastatin

D. Simvastatin

E. Fluvastatin

11) What is the most common adverse effect of niacin?

A. Constipation

B. Flatulence

C. Cholelithiasis

D. Pulmonary edema

E. Flushing

12) Which one of the following is a risk factor for the development of myositis with gemfibrozil?

A. Gender

B. Combination therapy with a statin

C. Routine exercise

D. High ambient temperature

E. Time of administration

Chapter 12 - Peripheral Arterial Disease

1) Although it's an invasive test, ankle-brachial index (ABI) is used to diagnose PAD.

A. True

B. False

2) Which conditions can mimic PAD and should be ruled out when making a differential diagnosis?

A. Deep venous thrombosis

B. Peripheral neuropathy

C. Arthritis

D. A and B only

E. A, B, and C

3) The Heart Outcomes Prevention Evaluation (HOPE) study demonstrated which class of antihypertensives reduced blood pressure and other cardiovascular events in patients with PAD?

A. β-Blockers

B. ACE inhibitors

C. Calcium channel blockers

D. Thiazide diuretics

4) For patients with PAD, ATP III recommends non–high-density lipoprotein levels of:

A. <150 mg/dL (<3.88 mmol/L)

B. <130 mg/dL (<3.36 mmol/L)

C. <100 mg/dL (<2.59 mmol/L)

D. <70 mg/dL (<1.81 mmol/L)

5) Due to the high prevalence of PAD among diabetic patients, the American Diabetes Association recommends ABI screening for:

A. All Type II diabetics

B. All Type I and Type II diabetics

C. All diabetics >50 years of age

D. All diabetics with coexisting hypertension

6) Which of the following conditions is listed in the "black box" warning for cilostazol?

A. PAD with coexisting congestive heart failure

B. PAD with coexisting atrial fibrillation

C. PAD with coexisting supraventricular tachycardia

D. All of the above

7) Which of the following recommendation(s) by the Seventh ACCP Conference on Antithrombotic and Thrombolytic Therapy for patients with PAD is true?

A. Ticlopidine is recommended over clopidogrel.

B. Clopidogrel is recommended over no antiplatelet therapy.

C. Pentoxifylline is recommended in patients with intermittent claudication.

D. All of the above are true.

8) Intermittent claudication is defined as:

A. Discomfort, pain, cramping in an affected extremity during exercise that resolves within a few minutes by resting

B. Discomfort, pain, cramping in an affected extremity during rest that resolves within a few minutes of light to moderate exercise

C. Discomfort, pain, cramping in an affected extremity most often felt at night while the patient is lying in bed

9) Which of the following is associated with more prevalent PAD?

A. Smoking

B. Hypercholesterolemia

C. Impaired renal function

D. A and B only

E. A, B, and C

10) In patients with PAD, the prevalence of death from cardiovascular disease is:

A. 30%

B. 50%

C. 75%

D. 90%

11) Walking exercise programs for patients with PAD have been proven to delay the onset of claudication.

A. True

B. False

12) The Antithrombotic Trialists' Collaboration (ATC) concluded that which medication leads to a significant reduction in serious vascular events (12%) in "high-risk" patients, such as those with PAD?

A. Aspirin

B. Clopidogrel

C. Ticlopidine

D. Pentoxifylline

Chapter 13 - Use of Vasopressors and Inotropes in the Pharmacotherapy of Shock

1) Which of the following conditions can result in a lowering of blood pressure in critically ill patients?

A. Decreased cardiac output

B. Decreased pulmonary capillary wedge pressure

C. Systemic vasodilation

D. All of the above

E. None of the above

2) The central venous pressure (CVP) catheter is a device that is used to effectively perform what function in critically ill patients?

A. Obtain venous blood samples

B. Administer drugs directly into the central circulation

C. Accurately determine blood volume

D. A and B only

E. All the above

3) Which of the following statements about central venous oxygen saturation is correct?

A. It indirectly measures oxygen extraction by tissues

B. It may be low in inadequately volume-resuscitated patients with septic shock

C. It measures adequacy of volume resuscitation more accurately than does blood pressure measurement

D. It should be targeted to a value in excess of 70% (0.70)

E. All the above

4) Which of the following parameters is a measurement of therapy on regional perfusion?

A. Arterial blood lactate concentration

B. Arterial gastric mucosal PCO_2 gap

C. Oxygen delivery

D. Oxygen consumption

E. Systemic vascular resistance

5) Stimulation of the β-adrenergic receptor by agonists results in a physiologic response mediated by which of the following?

A. Inositol trisphosphate

B. Cyclic AMP

C. Cyclic GMP

D. Intramucosal pHi

E. Nitric oxide

6) Which of the following drugs stimulates only α-adrenergic receptors?

A. Dobutamine

B. Dopamine

C. Phenylephrine

D. Epinephrine

E. Norepinephrine

7) Which of the following outcomes is a goal of early goal-directed therapy (EGDT)?

A. CVP of 8 to 12 mm Hg

B. MAP greater than 65 mm Hg

C. $ScvO_2$ greater than 70% (0.70)

D. Hematocrit greater than 30% (0.30)

E. All the above

8) Which of the following explains the development of lactic acidosis by a catecholamine?

A. Enhanced vasoconstriction in peripheral arteries

B. Enhanced glycogenolysis

C. Mobilization of lactate from peripheral tissues

D. A and B only

E. All the above

9) Which of the following catecholamines is associated with a fall in intramucosal pHi and rise in blood lactate concentration during treatment?

A. Dobutamine

B. Dopamine

C. Phenylephrine

D. Epinephrine

E. Norepinephrine

10) Which of the following catecholamines is preferred as the initial agent when treating hypotension in a septic shock patient?

A. Dobutamine

B. Dopamine

C. Phenylephrine

D. Epinephrine

E. Norepinephrine

11) Which adverse drug effect is *not* seen with dobutamine?

A. Tachycardia

B. Bradycardia

C. Hypotension

D. Decreased cardiac output

E. Decreased mesenteric perfusion

12) Which of the following statements is *true* regarding the use of corticosteroid therapy for the treatment of sepsis?

A. It should be used in all patients with sepsis

B. It should be started within 48 hours of the diagnosis of severe sepsis

C. It should be used when hemodynamic goals are not achieved despite fluid resuscitation and vasopressor therapy

D. It should be used only when plasma markers of inflammation are elevated

E. It should be used when serum cortisol concentration increases >9 mcg/dL (>250 nmol/L) after the adrenocorticotropic hormone stimulation test

13) Which of the following statements is *true* regarding the use of vasopressin in septic shock?

A. Studies have shown that it reduces mortality when it is added to vasopressors

B. Studies have shown that it reduces organ dysfunction when it is the first-line agent for septic shock

C. Studies have shown that it increases blood pressure while reducing the dose of other vasopressors when it is added to vasopressors

D. All of the above

E. A and B

14) A colleague asks you about studies comparing dopamine and norepinephrine for septic shock therapy. Which of the following is the most appropriate answer?

A. Dopamine may be associated with better blood pressure control and less tachyarrhythmias

B. Norepinephrine may be associated with better blood pressure control and less tachyarrhythmias

C. Both agents are associated with good blood pressure control and rare rates of less tachyarrhythmias

D. Both agents are associated with poor blood pressure control and high rates of less tachyarrhythmias

15) All of the following are similarities between phenylephrine and norepinephrine, *except*?

A. Both agents show mixed effects on myocardial performance in sepsis

B. Both agents may be dosed in µg/kg/min

C. Both agents may cause tachycardia via β_1 stimulation

D. Both agents may contribute to ischemic side effects

E. Both agents are not available as premixed ready-to-use solutions

16) Which of the following receptors is most likely to cause immunomodulation when stimulated?

A. β_1

B. β_2

C. α_1

D. Dopamine

E. V_1

17) Extravasation of a vasopressor catecholamine can be treated with intradermal injections of which of the following agents?

A. Phentolamine

B. Phenylephrine

C. Nitric oxide

D. Vasopressin

E. Dobutamine

Chapter 14 - Hypovolemic Shock

1) Which of the following causes of hypovolemic shock is most likely to require blood product administration in addition to other plasma expanders?

A. Long bone fracture

B. Nasogastric suctioning

C. Bowel edema

D. Thermal injury

2) Which fluid compartment in the body is most likely to be depleted in a patient with dehydration?

A. Intravascular

B. Intracellular

C. Interstitial

D. Extracellular

3) The lethal triad associated with substantial blood loss is composed of which of the following parameters?

A. Acidosis, hyperthermia, coagulopathy

B. Acidosis, hypothermia, coagulopathy

C. Alkalosis, hyperthermia, apoptosis

D. Alkalosis, hypothermia, necrosis

4) Which of the following is the most likely autoregulatory response by the body to compensate for decreased plasma volume?

A. Decreased heart rate

B. Decreased respiratory rate

C. Increased vascular resistance

D. Interstitial fluid accumulation

5) Which of the following compensatory mechanisms is most likely to be activated in the early stages of hypovolemic shock?

A. Activation of baroreceptors

B. Activation of chemoreceptors

C. Maximal transcapillary refill

D. Microcirculatory autoregulation

6) Which parameter of the Starling's equation of fluid transport is most likely to be measured in the clinical setting?

A. Interstitial oncotic pressure

B. Intravascular oncotic pressure

C. Interstitial hydrostatic pressure

D. Intravascular hydrostatic pressure

7) The condition when the arterial oxygen tension divided by the fraction of inspired oxygen is less than or equal to 300 in the absence of hypervolemia is known as:

A. Acute lung injury

B. Chronic lung injury

C. Acute respiratory distress syndrome

D. Chronic respiratory distress syndrome

8) A 50-kg adult patient with bleeding due to trauma is found to have minor signs and symptoms of distress, which suggests plasma volume losses less than:

A. 500 mL

B. 1,000 mL

C. 1,500 mL

D. 2,000 mL

9) What is the name of a problem that can lead to inadequate perfusion of organs after the initial resuscitation of a patient with hypovolemic shock has taken place?

A. Reperfusion injury

B. Transcapillary refill

C. Oncotic repletion

D. Osmol reset

10) Which of the following parameters is most useful and practical for assessing adequacy of resuscitation during the early stages of shock?

A. Pulmonary capillary wedge pressure

B. Pulmonary artery oncotic pressure

C. Catheterized urine output

D. Visual disturbances

11) Commercially available oral rehydration products in the United States are most likely to have osmolarity and sodium concentrations of approximately:

A. 400 mOsm/L and more than 100 mEq/L

B. 300 mOsm/L and more than 75 mEq/L

C. 250 mOsm/L and less than 50 mEq/L

D. 150 mOsm/L and less than 50 mEq/L

12) Based on efficacy and cost considerations, which of the following is the fluid of choice for the initial resuscitation of a patient with hypovolemic shock?

A. Normal saline

B. Dextrose 5%

C. Albumin 5%

D. Hetastarch 6%

13) If given in large but equivalent volumes, which of the following fluids is most likely to yield hyponatremia?

A. Normal saline

B. Albumin 5%

C. Hetastarch 6%

D. Lactated Ringer's

14) What is the evidence supporting a reduction in mortality with the use of a right heart catheter for monitoring interventions related to hypovolemic shock?

A. High-level evidence from randomized controlled trials

B. Moderate-level evidence from observational studies

C. Low-level evidence from large case series of patients

D. No substantial evidence of a mortality benefit

15) An adult patient with hypovolemic shock continues to have low urine output and blood pressure after the administration of 1 L of normal saline. What should be the next step assuming no signs of fluid overload?

A. More normal saline

B. Albumin 25%

C. Phenylephrine

D. Norepinephrine

Chapter 15 - Asthma

1) Which of the following asthma therapies has been shown to result in reduced death and hospitalizations for patients with asthma?

A. Inhaled corticosteroids

B. Cromolyn

C. Leukotriene modifiers

D. Long-acting β-agonists

2) Which of the following is the reason for the boxed warning in long-acting inhaled β_2-agonist FDA labeling?

A. Their slow onset makes them ineffective in acute asthma exacerbations.

B. They cause prolongation of the QTc interval increasing the risk of cardiac arrhythmias.

C. They are associated with an increased risk of asthma deaths when prescribed as monotherapy.

D. They result in increased severe exacerbations when used in combination with inhaled corticosteroids.

3) Which of the following statements is *true* concerning the use of inhaled corticosteroids in children with mild persistent asthma?

A. Inhaled corticosteroids are no more effective than cromolyn or montelukast.

B. Inhaled corticosteroids are more effective than alternatives but are not recommended for safety reasons.

C. Inhaled corticosteroids are the most effective controller but may decrease growth in children up to 1 cm.

D. Inhaled corticosteroids do not reduce severe exacerbations that can result in hospitalization and ED visits.

4) Which of the following is true regarding the use of peak flow monitoring for patients with asthma?

A. Peak flow monitoring has been demonstrated to improve outcomes in patients with asthma.

B. Peak flow monitoring may be useful for patients who are poor perceivers of airway obstruction.

C. Peak flow monitoring is superior to symptom monitoring only.

D. Peak flow monitoring is no longer recommended in the management of asthma as it is ineffective in improving outcomes.

5) One of your adult patients with severe persistent asthma was prescribed two inhalations of budesonide/formoterol 80/4.5 twice a day 3 months ago in addition to as-needed albuterol. He states that the new therapy has made a significant difference in his well-being and that he has never felt better. On questioning him, he states that he continues to occasionally awaken at night, although only one time per week, and that he did require a 7-day burst of prednisone for an upper respiratory tract infection last month so “is in to refill his prescription.” He only has symptoms two to three times per week, but they always respond to albuterol. The physician monitoring this patient should:

A. Continue with current therapy, as the patient is improving.

B. Consider increasing the regimen to budesonide/formoterol 160/4.5.

C. Consider adding regular inhaled ipratropium bromide.

D. Consider adding montelukast.

6) In the initial development of a disease management program for asthma in your managed care organization, the primary focus should be:

A. The provision of an extensive patient education program

B. Ensuring all patients do home monitoring of peak flows

C. Ensuring that only the least expensive asthma controller therapies are prescribed

D. Limiting the frequency of patient consultation with asthma specialists

7) A 70-kg female arrives at the emergency department with an acute exacerbation of asthma. A peak flow measurement was obtained and the results are 30% of the predicted value. Oxygen by nasal canula has been started. Which of the following is appropriate initial drug therapy?

A. Albuterol 2.5 to 10 mg by nebulization every 20 minutes

B. Albuterol 2.5 to 10 mg and ipratropium bromide 0.5 mg by nebulization every 20 minutes

C. Albuterol 2.5 to 10 mg by nebulization every 20 minutes and corticosteroids (e.g., prednisone, prednisolone, methylprednisolone) 30 to 45 mg by mouth every 6 hours

D. Albuterol 2.5 to 10 mg and ipratropium bromide 0.5 mg by nebulization every 20 minutes and corticosteroids (e.g., prednisone, prednisolone, methylprednisolone) 30 mg twice a day by mouth

8) In providing patient education, which of the following has been shown to result in reduced emergency care utilization due to asthma?

A. Teaching about the pathophysiology of asthma

B. Teaching self-management skills

C. Teaching inhaler administration technique

D. Teaching about the pharmacology of the drugs

9) Which of the following is the primary long-term controller medication for a 5-year-old female with moderate persistent asthma?

A. Salmeterol twice daily

B. Fluticasone propionate twice daily

C. Sustained-release theophylline twice daily

D. Montelukast once daily

10) Which of the following statements regarding short-acting inhaled β_2-agonists is the most correct?

A. Regular use of short-acting inhaled β_2-agonists worsens asthma, and increases its morbidity.

B. Regular use of short-acting inhaled β_2-agonists increases the risk of death and near death from asthma.

C. Short-acting inhaled β_2-agonists should be used on an as-needed basis only, so their use can be used as an outcome measure of control.

D. Regular use of short-acting inhaled β_2-agonists produces tolerance so that patients will not respond during acute exacerbations.

11) A 3-year-old child is diagnosed with mild persistent asthma. Which of the following is the preferred initial therapy?

A. As-needed inhaled albuterol only

B. 5-mg chewable montelukast tablet every evening plus as-needed inhaled albuterol

C. 20-mg nebulized cromolyn three times daily plus as-needed inhaled albuterol

D. 0.5-mg nebulized budesonide once daily plus as-needed inhaled albuterol

12) A 22-year-old female, diagnosed with moderate persistent asthma, goes to her pharmacy to pick up her prescription for fluticasone/salmeterol (100/50) combination. She has dispensed the medication in a dry powder inhaler called a Diskus, which she has never used before. Which of the following is the appropriate way for her to use this device?

A. Dispense the dose of medication, place lips around the mouthpiece, exhale into the device, inhale steadily and deeply, hold breath for 10 seconds, and breathe out slowly.

B. Shake the device, dispense the dose of medication, place lips around mouth piece, breathe in steadily and deeply, hold breath for 10 seconds, and breathe out slowly.

C. Shake the device, dispense the dose of medication, place lips around mouth piece, exhale into the device, inhale steadily and deeply, hold breath for 10 seconds, and breathe out slowly.

D. Dispense the dose of medication, place lips around mouthpiece, inhale forcefully and deeply, hold breath for 10 seconds, and breathe out slowly.

13) A 14-year-old basketball player is diagnosed with exercise-induced bronchospasm. The most appropriate therapy for him would be:

A. Begin ciclesonide once daily.

B. Begin two inhalations of albuterol prior to exercise.

C. Begin two inhalations of ipratropium bromide prior to exercise.

D. Begin 5 mg of montelukast 2 hours prior to exercise.

14) Regarding the use of nebulizers versus metered-dose inhalers plus valved holding chambers (MDI + VHC) for administering medication, which of the following statements is the most accurate?

A. The MDI + VHC provides more effective delivery than nebulizers, particularly in young children.

B. The MDI + VHC and nebulizers provide similar benefits even in patients in the emergency department.

C. The MDI + VHC delivery system is more cost-effective than nebulizers for administering albuterol.

D. The MDI + VHC is the only effective way for delivering inhaled corticosteroids to young children.

15) The *best* rationale for using inhaled corticosteroids as primary therapy for persistent asthma is:

A. ICSs have no adverse effects so their safety profile exceeds other therapies.

B. The primary pathologic finding in asthma is airway inflammation, particularly with eosinophils and T lymphocytes.

C. Inhaled corticosteroids are required to prevent the downregulation and tolerance of the β_2-adrenergic receptors.

D. ICSs work rapidly giving the patients positive feedback, thus encouraging adherence for long-term use.

Chapter 16 - Chronic Obstructive Pulmonary Disease

1) In classifying disease severity for a patient with COPD, the following components should be considered:

A. Spirometry results, age, comorbidities

B. Spirometry results, exacerbation history, and symptom frequency

C. Peak flow measurements, frequency of albuterol use, and recent hospitalizations

D. Previous intubations, oxygen requirement, and exercise tolerance

2) A patient with severe COPD is also likely to have evidence of:

A. Asthma

B. Pulmonary hypertension

C. Diabetes

D. Chronic liver failure

3) A possible serious side effect that requires monitoring in patients receiving roflumilast is:

A. GI bleeding

B. Weight loss

C. Peripheral neuropathy

D. Bowel obstruction

4) Among medications used in the treatment of a COPD exacerbation, the agent with the fastest onset of action is:

A. Prednisone

B. Ipratropium

C. Albuterol

D. Budesonide

5) Patients with COPD who are treated with inhaled corticosteroids have an increased risk of:

A. Bruising

B. Muscle atrophy

C. Respiratory tract infections

D. Weight gain

6) Which of the following is an appropriate recommendation for immunization against influenza virus infection in patients with COPD?

A. They should receive the inactivated intramuscular influenza vaccine annually.

B. They should receive the live attenuated intranasal vaccine annually.

C. They should not receive this vaccine due to the risk of infection.

D. They should receive any form of the vaccine, but only every 5 years.

7) A patient with COPD received the polysaccharide pneumococcal vaccine (PPSV) at age 60 years. He is now 67 years old. What is an appropriate recommendation at this time?

A. He should receive the PPSV vaccine again.

B. No additional vaccine doses are required.

C. He should receive the PPSV vaccine annually.

D. He should receive the pneumococcal conjugate vaccine at this time.

8) A patient treated with tiotropium should be instructed to:

A. Take the tablet every evening.

B. Inhale forcefully and deeply.

C. Inhale slowly over 5 seconds.

D. Rinse mouth after use.

9) Supplemental oxygen therapy is warranted for a COPD patient who exhibits:

A. Significant dyspnea

B. A sustained PO_2 of 55 mg Hg or less

C. Frequent and recurrent COPD exacerbations

D. An FEV_1 of less than 50% predicted

10) Inhaled corticosteroid therapy is indicated in a patient with COPD when:

A. A history of frequent exacerbations is present.

B. Significant hypoxemia occurs with moderate exertion.

C. There is a significant response to a long-acting bronchodilator.

D. The patient is greater than 60 years of age.

11) An intervention that is proven to impact the natural course of COPD is:

A. Supplemental oxygen therapy

B. Cessation of cigarette smoking

C. Influenza vaccine

D. Inhaled corticosteroid therapy

12) Long-acting bronchodilator therapy is indicated for a patient who experiences frequent and chronic symptoms from COPD because:

A. It has a proven mortality benefit.

B. This therapy improves response to inhaled corticosteroids.

C. It can reduce exacerbation frequency.

D. It is the most cost-effective approach available.

Chapter 17 - Pulmonary Arterial Hypertension

1) Pulmonary hypertension can be defined as a mean pulmonary artery pressure ≥25 mm Hg at rest with a pulmonary wedge pressure equal to or less than ___ mm Hg measured by cardiac catheterization.

A. 10

B. 15

C. 20

D. 25

2) Which of the following symptoms is *not* suggestive of pulmonary arterial hypertension?

A. Exertional chest pain

B. Syncope

C. Lower extremity edema

D. Wheezing

3) The endothelin abnormalities that are targets of current pharmacologic treatment options include all of the following *except*:

A. Supplementing endogenous vasodilators

B. Reducing endothelial platelet interaction and limiting thrombosis

C. Reducing levels of serotonin

D. Inhibiting endogenous vasoconstrictors

4) If unresponsive to acute vasoreactivity testing, the patient should *not* receive which class of drug therapy?

A. Calcium channel blockers

B. Endothelin antagonists

C. Phosphodiesterase inhibitors

D. Prostacyclin analogues

5) A 34-year old woman presents to your clinic with increasing dyspnea with mild exertion for 2 years, chest tightness, occasional ankle edema, and a recent episode of near syncope. The patient denies paroxysmal nocturnal dyspnea, orthopnea, wheezing, or palpitations but does report a 15-pound weight gain over the last year. Her past medical history includes having two children without pregnancy complications. The patient has no known drug allergies and is not currently taking any medications. Her family history is significant for type 2 diabetes mellitus.
Physical examination: The patient is 5 ft 5 in and 180 lb with a body mass index of 30 kg/m^2. Her heart rate is 86 beats/minute with a blood pressure of 128/74 mm Hg. Significant findings: Jugular venous pressure is 12 cm. Normal S_1 and S_2, 3/6 tricuspid murmur; 1+ lower extremity edema.
Imaging: Chest X-ray and electrocardiogram are ordered.
On the basis of the clinical presentation, what diagnostic test should be order next?

A. Pulmonary angiography

B. Echocardiography

C. Doppler ultrasound of lower extremity

D. Coronary angiography

6) Which of the following medications can be associated with significant elevations in aminotransferases, requiring baseline and monthly monitoring?

A. Epoprostenol

B. Amlodipine

C. Sildenafil

D. Bosentan

7) A patient presenting with no discomfort at rest but increased dyspnea, fatigue, and chest pain on exertion is classified in which World Health Organization functional class?

A. Class I

B. Class II

C. Class III

D. Class IV

8) A 28-year old woman presents to your clinic with increasing dyspnea with mild exertion for 1 year, chest tightness, and occasional ankle edema, consistent with World Health Organization Class II pulmonary arterial hypertension. The patient denies paroxysmal nocturnal dyspnea, orthopnea, wheezing, or palpitations but does report an 8-pound weight

gain over the last year. The patient has no known drug allergies and is not currently taking any medications. She has previously been found unresponsive to acute vasoreactivity testing. What is the *most* appropriate initial treatment for this patient?

A. Sildenafil 100 mg orally daily

B. Epoprostenol 8 ng/kg/minute continuous infusion

C. Bosentan 62.5 mg orally twice daily

D. Amlodipine 5 mg orally daily

9) A 28-year old woman presents to your clinic with increasing dyspnea with mild exertion for 1 year, chest tightness, and occasional ankle edema, consistent with World Health Organization Class II pulmonary arterial hypertension. The patient denies paroxysmal nocturnal dyspnea, orthopnea, wheezing, or palpitations but does report an 8-pound weight gain over the last year. The patient has no known drug allergies and is not currently taking any medications. She has previously been found unresponsive to acute vasoreactivity testing. What drugs should this patient avoid?

A. Ibuprofen

B. Digoxin

C. Furosemide

D. Acetaminophen

10) Which of the following agents is *not* used for acute vasoreactivity testing in pulmonary arterial hypertension?

A. Epoprostenol

B. Nitroglycerin

C. Adenosine

D. Nitric oxide

11) What is the correct mechanism of action of epoprostenol?

A. Competitive antagonist of endothelin receptors, causing vasodilation of the pulmonary vasculature

B. Phosphodiesterase inhibition, causing an increase in cyclic guanosine monophosphate leading to vasorelaxation

C. Inhibition of influx of extracellular calcium, leading to vasodilation

D. Direct vasodilation of pulmonary vascular beds as well as inhibition of platelet aggregation

12) Infection, catheter obstruction, and sepsis are potential serious complications of which drug?

A. Bosentan

B. Sildenafil

C. Epoprostenol

D. Diltiazem

13) Conventional pharmacologic therapy for pulmonary arterial hypertension includes all of the following *except*:

A. Digoxin

B. Oxygen therapy

C. Sublingual nitroglycerin

D. Warfarin

14) Women of child-bearing age with pulmonary arterial hypertension should be counseled on the risks of pregnancy. Which medication is Category X in pregnancy?

A. Ambrisentan

B. Amlodipine

C. Epoprostenol

D. Diltiazem

15) Epoprostenol is indicated for PAH patients with what WHO functional classification?

A. WHO functional class I and II

B. WHO functional class II and III

C. WHO functional class II, III, and IV

D. WHO functional class III and IV

Chapter 18 - Cystic Fibrosis

1) Which of the following sweat chloride values are diagnostic of cystic fibrosis (CF)?

A. 90 mmol/L

B. 30 mmol/L

C. 55 mmol/L

D. 10 mmol/L

2) Antiinflammatory therapy in CF patients is most easily done with:

A. Azithromycin

B. High-dose ibuprofen

C. Glucocorticoids

D. Acetaminophen

3) Sputum cultures can be used in the CF patient to check:

A. What organisms are colonizing the lungs

B. How much of an organism is growing

C. The susceptibility pattern of bacteria

D. All of the above

4) What mutation is commonly identified in the CF patient?

A. G551D

B. R117H

C. ΔF508

D. G54ZX

5) The following are all true regarding nonclassic CF *except*:

A. Males may be sterile

B. Adequate pancreatic exocrine function

C. May have pulmonary disease

D. Normal sweat chloride values

6) *Pseudomonas aeruginosa* and *Stenotrophomonas* could be covered by:

A. Ceftriaxone + amikacin + trimethoprim/sulfamethoxazole

B. Ceftazidime + ertapenem

C. Piperacillin + gentamicin+ doxycycline

D. Cefepime + azithromycin + doxycycline

7) A 5-year-old patient needs an aminoglycoside. Based on typical CF pharmacokinetics, what adjustments will you expect to make?

A. Increase the dose, shorten the interval

B. Increase the dose, extend the interval

C. Decrease the dose, shorten the interval

D. Decrease the dose, extend the interval

8) Airway clearance therapy: the sequence of therapy should be: (A) TOBI®; (B) Albuterol; (C) Pulmozyme®; and (D) Hypertonic saline

A. A,B,C,D

B. D,A,B,C

C. C,B,D,A

D. B,D,C,A

9) Which of the following vitamins should be supplemented in the CF patient?

A. Vitamin C

B. Vitamin B

C. Vitamin D

D. All of the above

10) Pulmozyme® is a:

A. Corticosteroid

B. Bronchodilator

C. Osmotic agent

D. Enzyme

11) The following statements regarding *Burkholderia cepacia* are all true *except*:

A. Treated by ceftazidime and trimethoprim/sulfamethoxazole

B. Transmitted from patient to patient

C. Gram-positive organism

D. Misidentified for *Pseudomonas*

12) The most appropriate treatment choice for CFRD is:

A. Metformin

B. Insulin

C. Rosiglitazone

D. Acarbose

13) Two parents that are both carriers for CF have a boy, what are the chances he may have CF?

A. 100%

B. 75%

C. 50%

D. 25%

14) According to the CF Foundation, what body mass index (BMI) percentile is considered "nutritional failure" in children?

A. 75th percentile

B. 50th percentile

C. 10th percentile

D. 90th percentile

15) A 10-year-old CF patient weighs 80 pounds (36 kg). What is a reasonable pancreatic enzyme dosing regimen?

A. 360,000 lipase units with each meal

B. 200,000 lipase units with each meal

C. Three Creon® 24,000 lipase unit capsules with each meal

D. Two Zenpep® 5,000 lipase unit capsules with each meal

Chapter 19 - Gastroesophageal Reflux Disease

1) Aggressive factors that can promote esophageal damage include all of the following *except*:

A. Bicarbonate

B. Gastric acid

C. Pancreatic enzymes

D. Bile acids

E. Pepsin

2) A "typical" symptom associated with GERD is:

A. Dysphagia

B. Regurgitation

C. Weight loss

D. Barrett's esophagus

3) The following is true regarding patients who present with symptom-based esophageal GERD syndromes:

A. Symptoms are always less severe than those presenting with erosive esophagitis.

B. Symptoms are always easier to treat than those presenting with erosive esophagitis.

C. H_2-receptor antagonists are the preferred treatment.

D. Symptoms can be as severe as those seen in patients with erosive esophagitis.

E. Maintenance therapy will not be needed.

4) Elderly patients with GERD can have the following defect in one of their protective host defense mechanisms:

A. Decreased saliva production

B. Increased bile acid production

C. Increased GI motility

D. Increased gastric emptying

E. Decreased acid production

5) The following factor(s) may increase a patient's risk for developing adenocarcinoma of the esophagus:

A. Presence of Barrett's esophagus

B. Presence of atypical GERD symptoms

C. Presence of strictures

D. Concomitant extraesophageal syndrome

E. Long-term proton pump inhibitor use

6) The presence of Barrett's esophagus can be diagnosed by:

A. Ambulatory pH monitoring

B. Manometry

C. Barium swallow

D. Endoscopy

E. Clinical presentation

7) The following type of patient is more at risk for developing GERD:

A. A 50-year-old obese female smoker

B. A 24-year-old white male with Crohn's disease

C. An 18-year-old African American male athlete

D. A 35-year-old male with below-the-knee amputation

E. A 5-year-old female with type 1 diabetes

8) All of the following drug classes can worsen GERD symptoms except:

A. Calcium channel blockers

B. Estrogens

C. Angiotensin-converting enzyme inhibitors

D. Anticholinergics

E. Barbituates

9) Lifestyle modifications include:

A. Elevating the head of the bed with three to four pillows

B. Eating larger meals less often

C. Decreasing protein intake

D. Elevating the head end of the bed 6 to 8 in (15 to 20 cm) with blocks

E. Wearing a girdle

10) The preferred initial treatment option for a 45-year-old male presenting with a 3-month history of severe, continuous GERD symptoms is:

A. Patient-directed therapy with OTC omeprazole

B. Prescription-strength H_2-receptor antagonist

C. Prescription-strength proton pump inhibitor

D. Antireflux surgery

E. Endoscopic therapy

11) Proton pump inhibitors exert their action by:

A. Stimulating histamine-2 receptors in the gastric parietal cells

B. Inhibiting gastric H^+/K^+-adenosine triphosphate in gastric parietal cells

C. Inhibiting Na^+/K^+-adenosine biphosphate in the gastric parietal cells

D. Inhibiting epithelial growth factor in the stomach

E. Increasing GI motility

12) The goal of acid suppression therapy is to:

A. Maintain the gastric pH above 7

B. Maintain the gastric pH below 3

C. Maintain the gastric pH above 4

D. Maintain the gastric pH below 2

E. Maintain the gastric pH above 8

13) A 50-year-old male truck driver might be most concerned with which of the following side effects of proton pump inhibitors:

A. Vitamin B_{12} deficiency

B. Dizziness

C. Headache

D. Constipation

E. Nausea

14) The most effective and recommended option for GERD maintenance therapy is:

A. Proton pump inhibitor

B. H_2-receptor antagonist

C. Antireflux surgery

D. Endoscopic therapy

E. Antacids

15) The following patient is the best candidate for maintenance therapy for GERD:

A. A 25-year-old patient with intermittent GERD symptoms

B. A 3-month-old baby with intermittent regurgitation of feeds

C. A 45-year-old patient who relapses after an 8-week course of proton pump inhibitor therapy

D. A 45-year-old patient with scleroderma

E. C and D

Chapter 20 - Peptic Ulcer Disease

1) Nonsteroidal antiinflammatory drug (NSAID)–induced ulcers differ from *Helicobacter pylori* (HP) –associated ulcers in that an NSAID-induced ulcer is:

A. Most likely located in the stomach.
B. Most likely associated with less severe upper GI bleeding.
C. Most likely associated with a greater degree of ulcer-related epigastric pain.
D. Most likely associated with gastric acid hypersecretion.

2) Which of the following best describes the presentation of patients with HP-induced ulcers?

A. Deep ulcer depth
B. A duodenal ulcer
C. Epigastric pain
D. Damage to the gastric mucosa

3) DP is a 72-year-old man with a documented NSAID-induced ulcer and is *H. pylori* negative. He must continue the NSAID for osteoarthritis. Which is the preferred medication for ulcer healing and prevention of future ulcers?

A. Sucralfate
B. Nizatidine
C. Misoprostol
D. Pantoprazole

4) TG is a 43-year-old white woman who presents to her PCP with a 2-week history of epigastric pain. She has no recent history of NSAID or antibiotic use. TG has no known drug allergies. A serum antibody for *H. pylori* is obtained and is positive. Which of the following would be considered the preferred initial therapy for *H. pylori*?

A. PPI + metronidazole + levofloxacin
B. PPI + metronidazole + clarithromycin
C. PPI + amoxicillin + clarithromycin
D. PPI + metronidazole + bismuth + tetracycline

5) Which of the following is an endoscopic test used to diagnose *H. pylori*?

A. Urea breath test
B. Mucosal biopsy
C. Fecal antigen
D. Antibody detection

6) A patient calls the pharmacy to complain about her tongue turning black after starting a new regimen for peptic ulcer disease. Which medication is causing the side effect?

A. Amoxicillin

B. Bismuth subsalicylate

C. Clarithromycin

D. Metronidazole

7) What is the recommended duration for initial treatment of *H. pylori* using clarithromycin-based triple therapy?

A. 5 days

B. 7 days

C. 10 days

D. 21 days

8) NH is a 65-year-old female who takes high-dose nabumetone for rheumatoid arthritis and warfarin for atrial fibrillation. Which of the following regimen(s) is/are recommended for prevention of NSAID-induced ulcers?

A. Add PPI to current regimen.

B. Change NSAID to celecoxib.

C. Change NSAID to ibuprofen + PPI.

D. A and B.

E. All of the above.

Chapter 21 - Inflammatory Bowel Disease

1) Which complication is associated with long-standing ulcerative colitis?

A. Fistula formation

B. Peripheral neuropathy

C. Birth defects

D. Carcinoma

2) Which of the following is implicated as a major factor in the development of inflammatory bowel disease?

A. Genetic predisposition

B. Presence of psychosocial stressors

C. Previous use of antibiotics

D. Enteric nervous system hypersensitivity dysregulation of proinflammatory cytokines

3) Which enzyme's activity should be evaluated prior to initiation of therapy in patients receiving azathioprine?

A. Xanthine oxidase

B. CYP2D6

C. TPMT

D. HLA DRPHLA-DR2

4) Which of the following is more characteristic of Crohn's disease than ulcerative colitis?

A. Confinement of disease to the colon and rectum

B. Fistula formation

C. Continuous pattern of inflammation

D. Superficial inflammation of the intestinal mucosa

5) Which adverse effect occurs at a higher rate in patients receiving the combination of infliximab and azathioprine?

A. Pancreatitis

B. Lymphoma

C. Hepatitis

D. Encephalopathy

6) Which of the following drugs would be the most effective for induction of remission of mild to moderate active ulcerative proctitis?

A. Oral mesalamine

B. Mesalamine suppository

C. Oral budesonide

D. IV infliximab

7) Which drug has been shown to have corticosteroid-sparing properties when used for treatment of ulcerative colitis?

A. Mercaptopurine

B. Budesonide

C. Mesalamine

D. Balsalazide

8) Which one of the following is a potential adverse effect of natalizumab?

A. Primary sclerosing cholangitis

B. Progressive multifocal leukoencephalopathy

C. Pulmonary fibrosis

D. Heart failure

9) What is a potential role for the use of metronidazole in patients with inflammatory bowel disease?

A. Alternate first-line therapy for mild active ulcerative colitis

B. Maintenance therapy for moderate active ulcerative proctitis

C. Treatment of perianal or colonic Crohn's disease

D. No role in the treatment of inflammatory bowel disease

10) Which drug is recommended for acute treatment of a hospitalized patient with severe active Crohn's disease who has failed maximum oral doses of mesalamine?

A. IV methylprednisolone

B. IV cyclosporine

C. Oral olsalazine

D. Oral azathioprine

11) Which baseline diagnostic test should be performed prior to initiating adalimumab therapy?

A. Serum potassium

B. Tuberculin skin test

C. Thyroid-stimulating hormone

D. Urinalysis

12) Which one of the following medications would be most appropriate as initial treatment of mild to moderate active Crohn's disease involving the terminal ileum?

A. Rowasa enema

B. Dipentum

C. Colazal

D. Entocort

13) Which medication is most effective for treatment of fistulizing Crohn's disease?

A. Sulfasalazine

B. Ciprofloxacin

C. Infliximab

D. Methylprednisolone

14) Which one of the following medications would be the most appropriate to treat an acute flare of ulcerative colitis in a patient who is 17 weeks pregnant?

A. Azathioprine

B. Methotrexate

C. Budesonide

D. Prednisone

15) Which one of the following drugs should not be used as maintenance therapy in a patient with Crohn's disease?

A. Prednisone

B. Methotrexate

C. Certolizumab

D. Azathioprine

Chapter 22 - Nausea and Vomiting

1) Patients experiencing simple nausea and vomiting associated with heartburn may obtain relief from:

A. Magnesium/aluminum hydroxide 30 mL orally

B. Cimetidine 200 mg orally

C. Ranitidine 75 mg orally

D. All of the above

E. None of the above

2) A 45-year-old woman asks your advice as to what she should bring with her on a cruise in case she develops motion sickness. You recommend all of the following except:

A. Dimenhydrinate

B. Scopolamine transdermal patch

C. Aprepitant

D. Meclizine

E. Diphenhydramine

3) Concomitant use of the following drug(s) with aprepitant can result in a potential drug interaction:

A. Etoposide

B. Oral contraceptives

C. Dexamethasone

D. Warfarin

E. All of the above

4) The preferred agent(s) for the prophylaxis of nausea and vomiting associated with the administration of gemcitabine in an adult is:

A. Dexamethasone

B. Granisetron

C. Granisetron plus dexamethasone

D. Granisetron plus dexamethasone plus aprepitant

E. None of the above

5) The best strategy for preventing delayed CINV is to control acute CINV and provide adequate prophylaxis for delayed CINV.

A. True

B. False

6) Chemotherapy-induced anticipatory nausea and vomiting (ANV) may be prevented by:

A. Control of acute CINV

B. Behavioral therapy

C. Lorazepam prior to chemotherapy

D. All of the above

E. None of the above

7) Strategies to reduce the risk of PONV include all of the following *except*:

A. Use of regional anesthesia

B. Avoidance of nitrous oxide

C. Use of supplemental hydrogen

D. Avoidance of opioids

E. Use of hydration

8) A 62-year-old man undergoes surgery and does not receive prophylaxis for PONV. Two hours after completion of the procedure, he complains of nausea. Select the most appropriate medication from the list below:

A. Granisetron 1 mg IV

B. Ondansetron 1 mg IV

C. Prochlorperazine 10 mg IV

D. Dexamethasone 8 mg IV

E. None of the above

9) Which of the following is the recommended first-line therapy for the treatment of nausea and vomiting in a pregnant woman?

A. Diphenhydramine

B. Meclizine

C. Prochlorperazine

D. Pyridoxine + doxylamine

E. Doxylamine

10) Which of the following statements is *false* concerning antiemetic use in children?

A. When receiving a chemotherapy regimen of high emetic risk, children should receive ondansetron plus dexamethasone to prevent CINV.

B. All children should receive the same standard dose of ondansetron to prevent CINV.

C. Oral rehydration therapy should be considered in pediatric patients experiencing nausea due to gastroenteritis.

D. Oral rehydration therapy may be facilitated by the administration of ondansetron.

11) A 52-year-old nonsmoking woman is scheduled for a hysterectomy. She experienced nausea and vomiting after a previous elective surgery. Select an appropriate regimen for PONV prophylaxis.

A. Dexamethasone 4 mg IV

B. Ondansetron 4 mg IV

C. Aprepitant 40 mg orally

D. Scopolamine transdermal patch

E. Dexamethasone 4 mg IV + ondansetron 4 mg IV

12) The preferred agent(s) for the prophylaxis of nausea and vomiting associated with the administration of doxorubicin + cyclophosphamide in an adult is:

A. Dexamethasone

B. Palonosetron

C. Palonosetron plus dexamethasone

D. Palonosetron plus dexamethasone plus aprepitant

E. None of the above

Chapter 23 - Diarrhea, Constipation, and Irritable Bowel Syndrome

1) Bacterial organisms responsible for the most episodes of infectious diarrhea include all of the following *except*:

A. *E. coli*

B. *Salmonella*

C. *Campylobacter*

D. *Pseudomonas*

E. *Shigella*

2) Absorption from the intestines occurs via the following process(es):

A. Active transport

B. Diffusion

C. Solvent drag

D. A and B

E. All of the above

3) This type of diarrhea occurs when a stimulating substance either increases secretion or decreases absorption of water and electrolytes:

A. Osmotic

B. Exudative

C. Secretory

D. Transitory

E. Hydrostatic

4) This type of diarrhea is distinguishable from other types because it ceases if the patient resorts to a fasting state:

A. Osmotic

B. Exudative

C. Secretory

D. Altered intestinal motility

E. None of the above

5) Which statement about acute diarrhea is *true*?

A. It is self-limiting, usually subsiding within 72 hours.

B. It is secondary to diseases such as diabetes.

C. It is treatable with bulk-forming laxatives.

D. It is a long-term condition that waxes and wanes throughout life.

E. It is always a sign of significant GI disease.

6) Which of the following drugs or measures are *not* advocated for prevention of traveler's diarrhea?

A. Special care with drinking water

B. Bismuth subsalicylate (BSS)

C. Special care with fresh vegetables

D. Avoidance of meat products

E. Antibiotic prophylaxis

7) If diarrhea occurs, therapeutic goals include all of the following *except*:

A. Prevent excessive water and electrolyte loss.

B. Provide symptomatic relief.

C. Manage the diet.

D. Treat curable causes.

E. Stop the diarrhea at all costs.

8) This antisecretory agent used to treat diarrhea may interact with anticoagulants, interfere with tetracycline absorption, and interfere with some GI radiographic studies:

A. Polycarbophil

B. Bismuth subsalicylate

C. Loperamide

D. Paregoric

E. Diphenoxylate with atropine

9) Which of the following statements about constipation is *true*?

A. Lack of daily bowel movements leads to buildup of toxic substances.

B. Daily bowel movements are required for health and well-being.

C. Inadequate diet is a major cause of constipation in the United States.

D. Normal healthy subjects pass at least six stools per week.

E. Constipation should be treated initially with castor oil.

10) Factors found to correlate with self-reported constipation include all of the following *except*:

A. Presence of hemorrhoids

B. Greater frequency in females

C. Total number of drugs taken

D. Age of subject

E. Greater frequency in males

11) Known causes of constipation include:

A. Metabolic disorders (diabetes)

B. Endocrine disorders (hypothyroidism)

C. Disorders of the large bowel (irritable bowel syndrome)

D. Disorders of the upper GI tract (ulceration, cancer)

E. All of the above

12) Drugs affecting GI function that may cause constipation include all of the following *except*:

A. Anticholinergics

B. Magnesium antacids

C. Opiates

D. Aluminum antacids

E. All of the above are known to cause constipation

13) The cornerstone of therapy in the treatment of constipation should be:

A. Decrease in fluid intake

B. Increase in dietary fiber

C. Biofeedback therapy

D. Prolonged use of laxatives

E. Anticholinergic drugs

14) Which laxative compound, famous for its ability to discolor the urine, is no longer contained in laxative products in the United States?

A. Casanthrol

B. Cascara sagrada

C. Bisacodyl

D. Phenolphthalein

E. Glycerin

15) To prevent constipation, patients should be advised to include this amount of fiber in their daily diet:

A. 10 to 15 g

B. 30 to 35 g

C. 50 to 55 g

D. 100 to 110 g

E. 150 to 160 g

16) Products such as psyllium, methylcellulose, and polycarbophil are known as:

A. Stimulant laxatives

B. Bulk-forming agents

C. Cathartics

D. Lubricants

E. Diphenylmethane derivatives

17) Which of the following statements about irritable bowel syndrome (IBS) is/are *true*?

A. It affects up to 80% of adults worldwide.

B. It is equally prevalent in both men and women.

C. It is characterized by abdominal pain, disturbed defecation, and bloating.

D. It is known to be of viral origin.

E. All of the above

18) The major pathophysiologic cause of irritable bowel syndrome is believed to be:

A. Bipolar disorder

B. Norwalk and rotavirus

C. Laxative abuse

D. Visceral hypersensitivity

E. E. coli

19) Current procedures used in the diagnosis of irritable bowel syndrome include:

A. Manning or Rome III criteria

B. Sigmoidoscopy or colonoscopy

C. Occult blood test and examination for parasites

D. CBC and erythrocyte sedimentation rate

E. All of the above

20) Which of the following treatment measures is recommended in constipation-predominant IBS?

A. Saline cathartics

B. Loperamide

C. Mineral oil

D. Dietary fiber

E. Lactulose

21) In addition to avoidance of certain food products, which of the following treatments is recommended in diarrhea-predominant IBS?

A. Saline cathartics

B. Loperamide

C. Mineral oil

D. Dietary fiber

E. Lactulose

22) Non-GI manifestations of IBS include all of the following *except*:

A. Increased passage of mucus

B. Urinary symptoms

C. Heart palpitations

D. Dyspareunia

E. Fatigue

23) Which of the following drug classes have been used for their analgesic effects in patients suffering from IBS-associated pain?

A. Tricyclic compounds

B. Serotonin reuptake inhibitors (SSRIs)

C. Preprandial doses of anticholinergic drugs

D. A and B

E. All of the above

24) Drug classes currently under investigation for the treatment of IBS include:

A. ACE inhibitors

B. Calcium channel blockers

C. β-Agonists

D. MAOIs

E. All of the above

Chapter 24 - Portal Hypertension and Cirrhosis

1) The most common causes of cirrhosis in the United States are:

A. Adverse effects of drug therapies such as amiodarone and methotrexate

B. Cholestatic liver disease such as primary biliary cirrhosis

C. Chronic alcohol consumption and chronic viral hepatitis

D. Metabolic liver diseases such as hemochromatosis and NASH

E. Severe congestive heart failure

2) Which of the following patient parameters is *not* included in the Child-Pugh scoring system?

A. Albumin

B. Ascites

C. Bilirubin

D. Encephalopathy

E. International normalized ratio

3) Which of the following is the best initial recommendation for prophylaxis against variceal bleeding for a patient with known moderate- to large-sized varices, no prior history of bleeding, and no known drug therapy contraindications?

A. Atenolol 50 mg twice daily

B. Endoscopic sclerotherapy

C. Isosorbide mononitrate 60 mg daily

D. Nadolol 40 mg daily

E. Propranolol 10 mg three times daily

4) When nonselective β-adrenergic blocker therapy is used to prevent rebleeding of varices, the goal of therapy that should be used is which of the following?

A. Heart rate of 45 to 50 beats/min

B. Heart rate of 55 to 60 beats/min

C. Heart rate of 65 to 70 beats/min

D. Heart rate of 75 to 80 beats/min

E. Heart rate of 85 to 90 beats/min

5) Which of the following vasoconstrictors is currently recommended as the first-line pharmacologic agent for acute variceal bleeding in the United States?

A. Dopamine

B. Octreotide

C. Somatostatin

D. Terlipressin

E. Vasopressin

6) The most rational approach for the secondary prophylaxis of variceal bleeding in patients with cirrhosis is currently considered to be which of the following?

A. Isosorbide mononitrate monotherapy

B. Nonselective β-adrenergic blocker monotherapy

C. EVL alone

D. Nonselective β-adrenergic blocker + endoscopic band ligation

E. Nonselective β-adrenergic blocker + isosorbide mononitrate

7) Which of the following best describes appropriate initiation of diuretic therapy in a patient with tense ascites following paracentesis?

A. Spironolactone monotherapy

B. Furosemide monotherapy

C. Spironolactone 40 mg daily + furosemide 100 mg daily

D. Spironolactone 100 mg daily + furosemide 40 mg daily

E. Spironolactone 400 mg daily + furosemide 160 mg daily

8) Albumin 1.5 g/kg on day 1 followed by 1 g/kg on day 3 should be considered in which of the following patients?

A. AP who is believed to have SBP, has an ascitic polymorphonuclear cell count of 300 cells/mm^3 (300 × 10^6/L), and serum creatinine of 1.2 mg/dL (106 µmol/L)

B. JR whose ascitic polymorphonuclear cell count is found to be 100 cells/mm^3 (100 × 10^6/L) and who has no symptoms of infection currently

C. TS who underwent therapeutic paracentesis with 4 L of fluid being removed and who has no symptoms of infection currently

D. VG who has just been admitted with mental status changes and believed to be suffering from an acute episode of HE

E. None of the above patients are appropriate candidates for receiving albumin infusion at this time

9) Which of the following represents the current recommendation for empiric antibiotic therapy in patients suspected to have ongoing spontaneous bacterial peritonitis?

A. Aztreonam

B. Cefotaxime

C. Metronidazole

D. Sulfamethoxazole + trimethoprim

E. Ampicillin + tobramycin

10) Long-term antibiotic prophylaxis against spontaneous bacterial peritonitis is appropriate in which of the following patients?

A. AD who has undergone paracentesis for ascites and had an ascitic protein of 2 g/dL (20 g/L)

B. JA who is currently receiving primary prophylaxis against variceal bleeding

C. PW who survived a variceal hemorrhage 4 months ago

D. RT who suffers from chronic hepatic encephalopathy

E. SB who survived spontaneous bacterial peritonitis last month

11) Which of the following is a recommended antibiotic choice for a patient who is in need of long-term antibiotic prophylaxis against spontaneous bacterial peritonitis?

A. Amoxicillin + clavulanic acid

B. Cephalexin

C. Metronidazole

D. Rifaximin

E. Sulfamethoxazole–trimethoprim

12) Which of the following is a correct match between a common precipitating factor of hepatic encephalopathy and a corresponding treatment alternative that is appropriate for the management of a patient presenting with hepatic encephalopathy due to that particular precipitating factor?

A. Infection: bowel cleansing via enema

B. Electrolyte abnormalities: lactulose

C. Renal insufficiency: paracentesis

D. Sedative ingestion: flumazenil

E. Variceal bleeding: proton pump inhibitor

13) The current first-line therapeutic drug option for a patient with HE is which of the following?

A. Flumazenil

B. Lactulose

C. Metronidazole

D. Neomycin

E. Rifaximin

14) Cirrhosis can lead to all of the following complications *except*:

A. Gynecomastia

B. Hepatopulmonary syndrome

C. Hepatorenal syndrome

D. Hypercoagulability

E. Hypothyroidism

15) Drugs metabolized through which of the following processes are *most* likely to be affected by cirrhosis?

A. Conjugation

B. Dealkylation

C. Hydrolysis

D. Oxidation

E. Sulfation

Chapter 25 - Pancreatitis

1) Which of the following etiologies of acute pancreatitis is the most common in the United States?

A. Gallstones

B. Medications

C. Alcohol

D. ERCP

2) Which of the following medications has a probable association as a cause of acute pancreatitis?

A. Pravastatin

B. Opiates

C. Lamivudine

D. Bactrim

3) Which of the following is correct concerning the course of acute pancreatitis?

A. About half of patients have a severe course with a mortality rate over 30%.

B. The gold standard for identifying patients at risk for a severe course is serum lipase.

C. There is no role for CECT in the diagnosis or staging of acute pancreatitis.

D. Scoring systems combine multiple factors to predict the clinical course of acute pancreatitis.

4) Which of the following is correct regarding fluid replacement in acute pancreatitis?

A. Patients at risk for renal or cardiovascular complications should be fluid restricted.

B. Fluid and electrolyte requirements are minimal in patients with mild disease.

C. The prognosis of patients often depends on the adequacy of volume restoration.

D. Sequestered fluid in the peritoneal or retroperitoneal space should not be replaced.

5) Which of the following is the best nutrition therapy for a patient with severe acute pancreatitis whose pain has improved and bowel sounds are normal?

A. Enteral nutrition via the nasogastric route

B. Enteral nutrition via the nasojejunal route

C. Total parenteral nutrition

D. Combined enteral and parenteral nutrition

6) Which of the following is correct with respect to the use of opioid analgesics for pain associated with acute pancreatitis?

A. Avoid agents that cause spasm of the sphincter of Oddi.

B. Morphine can be used first line.

C. Synthetic opioids are the preferred agents.

D. Meperidine is the agent of choice.

7) Which is of the following is correct regarding studies evaluating the use of prophylactic antibiotics in acute pancreatitis?

A. No benefit has been demonstrated with their use in mild disease.

B. Studies using carbapenems show a decrease in pancreatic infection.

C. The largest studies demonstrate the greatest benefit.

D. Studies enrolling patients without necrosis show a decrease in mortality.

8) Which of the following pathogenic mechanisms for the development of chronic pancreatitis results in fatty degeneration of the pancreas secondary to lipid accumulation due to the presence of metabolites of alcohol?

A. Toxic-metabolic

B. Oxidative stress

C. Periductular necrosis

D. Ductal obstruction

9) Which of the following is most indicative of chronic pancreatitis?

A. Serum trypsinogen of 10 ng/mL (mcg/L)

B. Fecal elastase of 400 mcg/g stool

C. Weight loss

D. Watery diarrhea

10) Which of the following is the best recommendation for a 47-year-old man with chronic pancreatitis who smokes and still has steatorrhea despite maximum pancreatic enzyme supplementation?

A. Begin an antisecretory agent and medium-chain triglyceride supplementation.

B. Quit smoking and begin medium-chain triglyceride supplementation.

C. Begin an antisecretory agent, quit smoking, and reduce fat intake to 0.5 g/kg/day.

D. Begin alternative enzyme supplement and reduce fat intake to 0.5 g/kg/day.

11) Which of the following is the best therapy for treating pain from chronic pancreatitis in a 51-year-old woman with a past medical history of a bleeding gastric ulcer who is no longer getting relief from acetaminophen 650 mg orally four times daily?

A. Fentanyl 25 mcg/h transdermal patch every 72 hours

B. Hydrocodone/acetaminophen 5/500 mg orally four times daily

C. Ibuprofen 400 mg orally three times daily

D. Tramadol 50 mg orally four times daily

12) Which of the following patients with chronic pancreatitis is the best candidate for pancreatic enzyme supplementation?

A. Steatorrhea with persistent weight loss

B. Steatorrhea without weight loss

C. Fecal fat estimation of 2 g/day

D. Worsening pain despite opioids

13) Which of the following pancreatic enzyme supplements would likely provide the largest amount of active lipase to the duodenum at a rate similar to that of chyme from the stomach?

A. Minitablets

B. Enteric-coated beads

C. Minimicrospheres

D. Microspheres with bicarbonate buffer

14) Which of the following is the best option for a patient with persistent steatorrhea who has not gained weight despite receiving the maximum dose of minimicrosphere enzyme supplements administered during meals?

A. Change to microspheres.

B. Add an antisecretory agent.

C. Administer supplements before meals.

D. Administer supplements with applesauce.

15) Which of the following should regularly be assessed in a patient receiving opioids for pain associated with chronic pancreatitis?

A. Steatorrhea

B. Weight loss

C. Respiratory depression

D. Constipation

Chapter 26 - Viral Hepatitis

1) Which of the following statements is correct regarding the transmission of hepatitis A, B, and C?

A. Hepatitis A is transmitted through the fecal–oral route, whereas hepatitis B is transmitted both sexually and via blood, and hepatitis C is transmitted via blood.

B. Hepatitis A, B, and C are all transmitted via blood and/or sexual contact.

C. Hepatitis A and B are transmitted through the fecal–oral route, and hepatitis C is transmitted by blood.

D. Hepatitis A, B, and C are transmitted through contaminated food or water and B and C are also transmitted through blood.

2) What is the rationale for prevention of hepatitis A?

A. Hepatitis A can cause complications, such as acute liver failure and death, in patients with comorbid conditions.

B. Hepatitis A is vaccine preventable.

C. Hepatitis A can have a financial impact including the costs of hospitalizations and indirect losses from loss of work days.

D. All of the above.

3) Which of the following is most correct regarding the prevention of hepatitis A?

A. Postexposure prophylaxis with immunoglobulin is preferred because it confers lifelong immunity.

B. Vaccination for hepatitis A is preferred because it confers lifelong immunity.

C. Vaccination is preferred but must be completed with the same brand of vaccine.

D. Vaccination is preferred but requires multiple doses before conferring immunity.

4) As part of a routine workup prior to initiation of immunosuppressive therapy, a patient is found to be HB_sAg positive. What are the implications of this serologic finding?

A. The patient may have an active infection with hepatitis B.

B. The patient may have a chronic infection with hepatitis B.

C. The patient may have received the hepatitis B vaccine.

D. A or B is correct.

E. A, B, or C is correct.

5) Which of the following statements is correct regarding patients with chronic hepatitis B infections?

A. Patients are at risk of developing end-stage liver disease and cancer even if they do not have symptoms.

B. Patients who are infected very early in life, such as infants, are unlikely to develop complications because they are immune tolerant to the virus.

C. Patients who have chronic infection should be treated as soon as they are recognized to be hepatitis B positive to minimize the risk of developing end-stage liver disease and cancer.

D. All of the above are correct.

6) Which of the following statements best summarizes key concerns in initiating treatment for hepatitis B?

A. An HBV viral load and evaluation of ALT levels should be done to determine if a patient should receive treatment or be managed by periodic monitoring.

B. Prior HBV drug-therapy exposure should be evaluated because the choice and dosage of HBV drug therapy are different depending on previous treatment history.

C. The patient's HIV status should be checked because a number of HBV drugs also have activity against HIV.

D. All of the above are correct.

7) Which of the following statements regarding HBV resistance is most correct?

A. All of the HBV drugs offer a unique action against HBV so cross-resistance is unlikely.

B. Resistance occurs because patients do not take their medications.

C. HBV replicates rapidly and mutates easily so ongoing viral suppression is required to minimize the risk of developing resistance.

D. Combination therapy is implemented because the number of mutations required to cause resistance is higher than single-agent therapy.

8) Which of the following statements is true regarding the treatment of chronic HBV?

A. The possible agents for all patients are lamivudine, telbivudine, adefovir, tenofovir, entecavir, and interferon.

B. Patients with evidence of decompensated cirrhosis should avoid interferon therapies.

C. Patients coinfected with HIV should have their HIV regimen changed to include only agents with activity against both HIV and HBV.

D. B and C are correct.

9) Which of the following best describes nonpharmacologic interventions important to minimize further hepatic damage in patients with chronic hepatitis C infections?

A. Herbal therapies can help minimize liver damage.

B. Patients should avoid alcohol.

C. Patients should avoid alcohol and marijuana.

D. Patients should avoid alcohol and marijuana, and maintain a normal body weight.

10) According to the CDC, who should be screened for hepatitis C?

A. Anyone who has ever used injection drugs

B. Anyone who received a blood transfusion prior to 1992

C. Anyone born between 1945 and 1965

D. All of the above

11) Which of the following is correct regarding the treatment of hepatitis C?

A. Treatment can achieve viral suppression and the likelihood of response depends on the infecting genotype.

B. Treatment can achieve viral suppression to reduce the risk of developing end-stage liver disease and cancer.

C. Treatment can achieve cure, but current therapies are not successful in most patients.

D. Treatment can achieve cure and recent progress in therapies makes this a viable goal for many patients.

12) Which of the following is correct regarding HCV treatment response?

A. Patients who do not achieve an undetectable viral load at week 4 of therapy will not achieve SVR.

B. Patients who achieve an undetectable viral load at week 4 of therapy are very likely to achieve SVR.

C. Patients who do not achieve an undetectable viral load until week 12 of therapy will not achieve SVR.

D. Patients who do not achieve an undetectable viral load until week 8 of therapy will not achieve SVR.

13) Which of the following is the treatment for hepatitis C?

A. Pegylated interferon and ribavirin for all genotypes

B. Pegylated interferon, ribavirin, and a protease inhibitor for genotype 1 and pegylated interferon and ribavirin only for all other genotypes

C. Pegylated interferon, ribavirin, and a protease inhibitor for genotypes 1, 2, and 3, and pegylated interferon and ribavirin only for all other genotypes

D. Pegylated interferon, ribavirin, and a protease inhibitor for all genotypes

14) Which of the following best identifies the challenges of hepatitis C therapy?

A. Laboratory abnormalities including neutropenia and anemia.

B. Patients can experience depression, fatigue, and rash.

C. Adherence is important for outcomes and concerns for developing resistance.

D. All of the above.

Chapter 27 - Celiac Disease

1) Which of the following may be safely ingested by a patient with celiac disease?

A. Graham flour

B. Triticale

C. Bran

D. Buckwheat

2) Which of the following infectious agents has been suggested to contribute to the development of celiac disease?

A. *Giardia lamblia*

B. *Haemophilus influenzae*

C. Meningococcus

D. Rhinovirus

3) The prevalence of celiac disease appears to be:

A. Increasing

B. Decreasing

C. Staying the same

D. Decreasing in some countries and remaining the same in others

4) In celiac disease the integrity of the tissue junctions of the intestinal epithelium is:

A. Strengthened

B. The same as in non–celiac disease patients

C. Compromised

D. Unable to be assessed

5) In active celiac disease, damaged cells release which enzyme that modifies gluten?

A. Interleukin-15

B. Tissue transglutaminase

C. Pancrease

D. Pepsin

6) Signs associated with celiac disease include all of the following *except*:

A. Weight loss

B. Infertility

C. Aphthous ulcers

D. Hirsutism

7) Which of the following disorders is more likely to be present in individuals with celiac disease?

A. Diabetes mellitus

B. Asthma

C. Addison's disease

D. Rheumatoid arthritis

8) Which of the following is a positive finding on small intestinal biopsy for patients with celiac disease?

A. Decreased intraepithelial lymphocytes

B. Enhancement of nuclear polarity

C. Change from cuboid to columnar cells

D. Crypt elongation and hyperplasia

9) The diagnosis of dermatitis herpetiformis includes which of the following:

A. Taking a small skin biopsy from normal skin that is next to the blister site

B. Taking a small intestine biopsy

C. Applying gluten to the skin

D. A trial of treatment with a topical corticosteroid

10) The histologic classification of the intestinal biopsy sample found in the majority of patients with celiac disease is Marsh:

A. I

B. II

C. III

D. IV

11) Which of the following is a common misdiagnosis of celiac disease?

A. Viral gastroenteritis

B. Gallbladder disease

C. Psychological disorder

D. All of the above are correct

12) Which of the following nutritional deficiencies should not be assessed for in newly diagnosed patients with celiac disease?

A. Iron

B. Calcium

C. Vitamin C

D. Folic acid

13) Overall goals of treatment of celiac disease routinely include all of the following *except*:

A. Healing the intestine

B. Reversing the consequences of malabsorption

C. Relief of symptoms

D. Enhancing weight loss

14) What percent of adult patients have refractory celiac disease?

A. 5

B. 10

C. 15

D. 20

15) When is clinical improvement often observed in celiac disease patients after initiating a strict gluten-free diet?

A. 2 to 3 years

B. 1 to 2 years

C. 6 months to 1 year

D. Within days or weeks

Chapter 28 - Acute Kidney Injury

1) Which of the following is the *most common* type of acute kidney injury (AKI) in the inpatient setting?

A. Prerenal AKI

B. Functional AKI

C. Pseudorenal AKI

D. Intrinsic AKI

E. Postrenal AKI

2) A 70-year-old long-term care resident is admitted to the hospital with nausea and vomiting. His admission laboratory values are blood urea nitrogen (BUN) of 43 mg/dL (15.4 mmol/L), serum creatinine (S_{cr}) of 2.1 mg/dL (186 µmol/L), a fractional excretion of sodium (Fe_{Na}) of 0.5% (0.005), and hyaline casts on urine sediment. The *most likely*etiology of his AKI is:

A. Acute tubular necrosis

B. Bladder obstruction

C. Acute interstitial nephritis

D. Drug-induced AKI

E. Volume depletion

3) A 56-year-old male presents to the hospital with prerenal acute kidney injury. Based on the Kidney Disease: Improving Global Outcomes (KDIGO) classification system, which of the following parameters should be used to determine the severity of his kidney injury?

A. Serum creatinine and blood urea nitrogen

B. Serum creatinine and urine output

C. Glomerular filtration rate and blood urea nitrogen

D. Blood urea nitrogen and urine output

E. Glomerular filtration rate and cystatin C

4) A 66-year-old (77-kg) man is admitted to the intensive care unit in septic shock. His serum creatinine increased from a baseline of 1 to 2.6 mg/dL (88 to 230 µmol/L), and his blood urea nitrogen (BUN) increased from 13 to 35 mg/dL (4.6 to 12.5 mmol/L) during the last 24 hours. His urine output in the last 24 hours was 25 mL. Per Kidney Disease: Improving Global Outcomes (KDIGO) classification, which stage does this patient's acute kidney injury belong to?

A. Stage I

B. Stage II

C. Stage III

D. Stage IV

E. Stage V

5) Which of the following laboratory markers would provide the earliest detection of acute kidney injury?

A. Serum creatinine

B. Urine output

C. Blood urea nitrogen

D. Glomerular filtration rate

E. Neutrophil gelatinase–associated lipocalin

6) A 56-year-old woman with a history of stage 3 chronic kidney disease is scheduled for diagnostic imaging requiring contrast dye administration. Her serum creatinine is 2.2 mg/dL (194 µmol/L); blood urea nitrogen (BUN) is 30 mg/dL (10.7 mmol/L). Her complete blood count and electrolytes are all within normal range. Which of the following medications would you recommend to decrease her risk of contrast-induced nephropathy?

A. Dopamine infusion

B. Isotonic saline infusion

C. Hemodialysis before and after the procedure

D. Furosemide infusion

E. Erythropoietin

7) Based on Kidney Disease: Improving Global Outcomes (KDIGO) guidelines, which of the following medications may be used to prevent contrast-induced nephropathy?

A. Ascorbic acid

B. Fenoldopam

C. Dopamine

D. *N*-Acetylcysteine

E. Nesiritide

8) A 67-year-old male with past medical history of congestive heart failure (CHF) and stage 4 chronic kidney disease is admitted to the hospital with a CHF exacerbation. During his admission, he develops significant volume overload. His primary team initiates furosemide 40 mg IV twice daily with little improvement. What would be the *best*recommendation regarding the management of his volume overload?

A. Change furosemide to bumetanide.

B. Add ethacrynic acid.

C. Increase dose of furosemide.

D. Change furosemide to hydrochlorothiazide.

E. Add bumetanide.

9) A 36-year-old male is diagnosed with acute interstitial nephritis (AIN) secondary to nafcillin administration for methicillin-susceptible *Staphylococcus aureus* bacteremia. Which of the following pathophysiologic processes is *most likely* to be involved in the development of AIN?

A. Glomerular damage secondary to severe inflammation

B. Tubular epithelial cell necrosis due to ischemia

C. Drug hypersensitivity reaction leading to interstitial inflammation

D. Decreased renal perfusion

E. Bladder outlet obstruction

10) FT is a 67-year-old male who developed acute tubular necrosis after undergoing cardiac surgery. Which of the following pharmacotherapeutic interventions is *most likely* to reverse the renal injury in this patient?

A. Isotonic saline hydration

B. Sodium bicarbonate hydration

C. Intermittent hemodialysis

D. Continuous renal replacement therapy

E. None of the above since supportive care is the mainstay of therapy

11) Compared with continuous renal replacement therapy, one of the main disadvantages of intermittent hemodialysis is that:

A. It is associated with more hypotension.

B. It is not readily available at most hospitals.

C. It is more labor intensive.

D. It requires anticoagulation.

E. It requires continuous dialysis 24 hours/day.

12) AT is a 54-year-old female presenting to the emergency department with acute kidney injury (AKI) secondary to dehydration. Her labs indicate the following: Na 133 mEq/L (133 mmol/L), K 5.8 mEq/L (5.8 mmol/L), Cl 101 mEq/L (101 mmol/L), CO_2 22 mEq/L (22 mmol/L), PO_4 5.3 mg/dL (1.71 mmol/L), Ca 7.8 mg/dL (1.95 mmol/L), BUN 33 mg/dL (11.8 mmol/L), and S_{cr} 2.2 mg/dL (194 µmol/L). Which of the following electrolyte abnormalities does AT have that are commonly found in patients with AKI?

A. Hypophosphatemia

B. Hyperkalemia

C. Hyponatremia

D. Hypocalcemia

E. None of the above since electrolytes are usually unaffected

13) All of the following factors can make drug dosing a challenge in a critically ill patient with established AKI *except*:

A. Presence of edema

B. Presence of residual nonrenal clearance

C. Need for constant reassessment of the patient's renal function

D. Changes in the modality of renal replacement therapy

E. Presence of electrolyte abnormalities

14) In continuous renal replacement therapy (CRRT), the following statement is true regarding drug clearance:

A. Increasing CRRT ultrafiltration rate will generally result in increased drug clearance.

B. Decreasing the CRRT ultrafiltration rate will generally result in increased drug clearance.

C. Decreasing the CRRT dialysate rate will generally result in increased drug clearance.

D. Increasing the CRRT dialysate rate will generally result in decreased drug clearance.

E. CRRT ultrafiltration and dialysate rate changes generally have no impact on drug clearance.

15) Which of the following medications is *most likely* to cause acute tubular necrosis in a 75-year-old hospitalized patient?

A. Valsartan

B. Acyclovir

C. Furosemide

D. Gentamicin

E. Cefepime

Chapter 29 - Chronic Kidney Disease

1) A 63-year-old female with type 1 diabetes, hypertension, and an eGFR of 36 mL/min/1.73 m^2 would be classified as having what KDIGO stage of chronic kidney disease?

A. G2

B. G3a

C. G3b

D. G4

E. G5

2) Type 2 diabetic patients should be screened for microalbuminuria every:

A. Month

B. 3 months

C. 6 months

D. 12 months

E. 24 months

3) Metformin should be discontinued in a person with stable chronic kidney disease when his or her eGFR is below which of the following?

A. 60 mL/min/1.73 m^2

B. 50 mL/min/1.73 m^2

C. 40 mL/min/1.73 m^2

D. 30 mL/min/1.73 m^2

4) Recommended vaccines in a patient with stage 4 chronic kidney disease include:

A. Influenza

B. Pneumococcal

C. Hepatitis B

D. Hepatitis A

E. A, B, and C

5) ACE inhibitors and ARBs are the preferred agent in which of the following patients?

A. Diabetic with ACR >30 mg/g (>3 mg/mmol)

B. Nondiabetic with ACR >30 mg/g (>3 mg/mmol)

C. Nondiabetic with urine protein excretion rate of 100 mg/24hr

D. A and B

E. All of the above

6) A 55-year-old male patient with diabetic kidney disease, an eGFR = 38 mL/min/1.73 m2, and a serum potassium = 3.7 mEq/L (mmol/L) is started on ramipril 5 mg by mouth once daily. Two weeks later, his eGFR is 28.5 mL/min/1.73 m^2 and serum potassium is 5.2 mEq/L (mmol/L). Which of the following is the most appropriate recommendation?

A. Repeat eGFR in 10 to 14 days.

B. Decrease ramipril to 2.5 mg by mouth once daily.

C. Advise dietary restriction of potassium.

D. A and B.

E. A and C.

7) What is the target blood pressure in a patient with kidney disease secondary to long-standing hypertension with an ACR <30 mg/g (<3 mg/mmol)?

A. 125/75 mm Hg

B. 130/80 mm Hg

C. 140/90 mm Hg

D. 150/90 mm Hg

E. 160/90 mm Hg

8) A 32-year-old patient with diabetic kidney disease on an ACEI becomes pregnant. The ACEI is discontinued. Which of the following drugs has been shown to reduce proteinuria and is safe for use in pregnancy?

A. Diltiazem

B. Atenolol

C. Spironolactone

D. Eplerenone

E. Aliskiren

9) Which of the following is the most common cause of resistance to therapy with an erythropoietic-stimulating agent (ESA)?

A. Iron deficiency

B. GI bleeding

C. Hyperparathyroidism

D. Folate deficiency

10) Which of the following is the primary stimulus for secretion of parathyroid hormone by the parathyroid gland?

A. Vitamin D therapy

B. Calcimimetic therapy

C. Hyperphosphatemia

D. Hypocalcemia

11) For which of the following IV iron agents is observation of the patient for at least 30 minutes following administration recommended?

A. Iron dextran

B. Sodium ferric gluconate

C. Ferumoxytol

D. Iron sucrose

E. Observation is recommended with all agents

12) Use of ESAs to target higher hemoglobin levels in the CKD population has been associated with which of the following?

A. Decrease in mortality

B. Improved survival

C. Decrease in quality of life

D. Increase in cardiovascular events

13) A patient with stage 3 CKD has vitamin D deficiency with a 25-hydroxyvitamin D level of 12 ng/mL (30 nmol/L). Which of the following agents would be most beneficial to correct this deficiency?

A. Calcitriol

B. Doxercalciferol

C. Ergocalciferol

D. Paricalcitol

14) Which of the following is a potential advantage of using sevelamer carbonate as a phosphate-binding agent compared with other available phosphate binders?

A. It is available in a powder formulation.

B. It is absorbed to a greater extent in the GI tract.

C. It is available as a chewable tablet.

D. It can be given IV or orally.

15) A patient with stage 3 CKD with a PTH of 180 pg/mL (180 ng/L; 19.3 pmol/L) and persistently low calcium levels would most likely benefit from which of the following agents?

A. Cinacalcet

B. Paricalcitol

C. Calcitriol

D. Doxercalciferol

Chapter 30 - Hemodialysis and Peritoneal Dialysis

1) The most commonly used treatment for end-stage renal disease is:

A. Continuous renal replacement therapy

B. Peritoneal dialysis

C. Renal transplantation

D. Hemodialysis

2) In comparison to HD, PD:

A. Is associated with higher clearance rates for both solutes and water

B. Enables closer monitoring of the patient

C. Is associated with a lower technique failure rate

D. May result in better preservation of residual renal function

3) Which of the following is the most important indication for initiation of chronic dialysis therapy?

A. Blood urea nitrogen concentration greater than 60 mg/dL (21.4 mmol/L)

B. Estimated glomerular filtration rate less than 25 mL/min/1.73 m^2

C. Hyperphosphatemia

D. Persistent symptoms, such as nausea and uncontrolled hypertension

4) Because of lower rates of infection and thrombosis associated with its use, which of the following HD vascular access is considered to be the most desirable to use clinically?

A. Arteriovenous graft

B. Arteriovenous fistula

C. Central venous catheter

D. Venous catheter

5) Which of the following dialysis membranes is most likely to remove large molecular weight substances during HD?

A. Conventional HD

B. High-flux HD

C. High-efficiency HD

D. Peritoneal membrane

6) Which of the following statements is not true regarding PD?

A. In comparison to HD, PD is less efficient at removing solutes and water

B. During PD, there is counter current flow of blood and dialysate, which increases diffusion and convection

C. Blood flow to the peritoneal membrane can be regulated, but to a lesser degree than blood flow through a vascular access in HD

D. The peritoneal membrane functions as the semipermeable membrane

7) To provide adequate PD:

A. Weekly *Kt/V* should exceed 1.7 for CAPD patients

B. Daily *Kt/V* should exceed 1.7 for CAPD patients

C. Residual renal function is not considered an important factor in the *Kt/V*

D. *Kt/V* should be at least 2.0 for patients without residual renal function

8) RC is a 63-year-old patient with ESRD receiving outpatient HD thrice weekly that experiences intradialytic hypotension. What nonpharmacologic approaches should be considered to minimize RC's intradialytic hypotension?

A. Stretching exercises

B. Trendelenburg position

C. Encourage food and beverage intake during dialysis

D. Increase the dialysate temperature

9) The preferred route for antibiotics to treat peritonitis in PD patients is:

A. IV, using dosing based on a renal function of less than 15 mL/min/1.73 m^2

B. IV, increasing the dose by 25% for patients with daily urine output greater than 100 mL

C. Intraperitoneally, with one large antibiotic dose given in one exchange per day in CAPD patients

D. Intraperitoneally, with the same antibiotic dosing used for CAPD and APD patients

10) Which of the following is true regarding PD catheter-related infections?

A. Topical antibiotics and disinfectants are ineffective in preventing PD catheter-related infections

B. Vancomycin is the antibiotic of choice for gram-positive PD catheter-related infections

C. PD catheter-related infections that progress to peritonitis seldom need to have the catheter removed

D. Gram-positive organisms should be treated with an oral penicillinase-resistant penicillin or a first-generation cephalosporin such as cephalexin

11) A 62-year-old male who receives regular HD for the past 3 years with an arteriovenous (AV) graft has diminished blood flow through his AV graft. Which one of the following would be best to restore AV graft blood flow for this patient?

A. Tenecteplase

B. Heparin

C. Alteplase

D. 4% sodium citrate

12) AV graft blood flow for this patient has been restored and the nephrologist is discussing adding an oral agent to prevent AV graft thrombosis in this patient. Which one of the following would be best to recommend for this patient at this time?

A. Warfarin

B. Aspirin

C. Fish oil supplement

D. No therapy

13) A 67-year-old female HD patient receiving regular HD for the past year has had several episodes of symptomatic intradialytic hypotension that was being treated with midodrine. The patient complained of tingling in her hands and feet and subsequently stopped taking midodrine. Which one of the following would be best to recommend for this patient at this time?

A. Advise the patient to take midodrine as needed

B. Review vital readings and current medications for this patient

C. Initiate paroxetine 10 mg once daily on non-HD days

D. Initiate intranasal desmopressin acetate one spray three times a week

14) A 71-year-old female PD patient has been diagnosed with a catheter exit-site infection and empiric antibiotic therapy needs to be initiated. Which one of the following would be best to recommend for this patient at this time?

A. Vancomycin

B. Rifampin

C. Cephalexin

D. Ciprofloxacin

15) The prevention of HD catheter exit-site infections requires a multistep approach that includes a topical antibiotic applied to the exit-site and/or catheter tip. Which of the following agents may increase the risk of fungal infections in PD patients?

A. Mupirocin ointment

B. Gentamicin cream

C. Povidine-iodine solution

D. Polysporin triple ointment

Chapter 31 - Drug-Induced Kidney Disease

1) The most common manifestation of DIKD is:

A. Proteinuria

B. Pyuria

C. Hematuria

D. A decline in the glomerular filtration rate (GFR)

E. A reduction in tubular secretion

2) Regarding DIKD, all of the following are applicable *except*:

A. Temporal relationship with potentially toxic agent

B. The offending agent is rarely identified

C. Significant source of morbidity in the hospital setting

D. Abrupt and sustained reduction in GFR

E. The most common presentation in the hospital setting is acute tubular necrosis

3) Which of the following drugs would be the most likely culprit in a patient with newly diagnosed renal intratubular obstruction?

A. Ibuprofen

B. Losartan

C. Amphotericin B

D. Ciprofloxacin

E. Acyclovir

4) Hemodynamically mediated kidney injury induced by angiotensin-converting enzyme inhibitors (ACEI) involves all of the following *except*.

A. Enhanced efferent arteriolar constriction

B. Patients with renal artery stenosis at increased risk

C. Decrease in glomerular capillary hydrostatic pressure

D. Reduced glomerular ultrafiltration

E. None of the above

5) Which of the following drugs has been associated with chronic interstitial nephritis?

A. Cyclosporine

B. Ifosfamide

C. Lithium

D. Streptozotocin

E. All of the above

6) Which of the following drugs has been associated with collapsing glomerulosclerosis?

A. Propylthiouracil

B. Aminoglycosides

C. Pamidronate

D. Radiographic contrast media

E. Hydralazine

7) The following renal structural–functional alteration is associated with exposure to radiographic contrast media:

A. Allergic interstitial nephritis

B. Intratubular obstruction

C. Glomerular sclerosis

D. Acute tubular necrosis

E. Papillary necrosis

8) All of the following strategies may be used to prevent radiographic contrast media nephrotoxicity *except*:

A. Amifostine

B. Acetylcysteine

C. Low osmolality agents

D. Hydration

E. Reduced doses of contrast

9) The preferred agent for preventing cisplatin-induced nephrotoxicity is:

A. Fenoldopam

B. Amifostine

C. Dopamine

D. Acetylcysteine

E. Mesna

10) All of the following drugs are linked to the development of ANCA-positive vasculitis *except*:

A. Hydralazine

B. Allopurinol

C. Warfarin

D. Propylthiouracil

E. Penicillamine

11) Each of the following statements regarding aminoglycoside-induced acute tubular necrosis is true *except*:

A. Risk factors include prolonged therapy and increased age

B. It manifests as a gradual rise in serum creatinine 4 to 6 weeks after exposure to the drug

C. Patients typically present with nonoliguria, maintaining urine volumes greater than 500 mL/day

D. Toxicity of various aminoglycosides is related to cationic charge of the drug

E. “Once-daily” dosing may be one method to maintain antimicrobial efficacy while reducing nephrotoxicity

12) The preferred treatment for a patient with drug-induced minimal change glomerular injury accompanied by interstitial nephritis is:

A. Amifostine

B. Cyclophosphamide

C. Pamidronate

D. Prednisone

E. Hydration

13) The signs and symptoms of penicillin-induced allergic interstitial nephritis include all of the following except:

A. Rash, eosinophilia, pyuria

B. Fever, eosinophilia, reduced intraglomerular pressure

C. Fever, rash, eosinophilia

D. Elevated serum creatinine, rash, eosinophilia

E. Hematuria, proteinuria, oliguria

14) A 60-year-old woman with a 5-year history of NSAID use is prescribed enalapril and develops acute kidney injury (AKI). What is the most likely cause of her AKI?

A. Acute allergic interstitial nephritis

B. Chronic interstitial nephritis

C. Minimal change glomerular injury

D. Focal segmental glomerulosclerosis

E. Hemodynamically mediated kidney injury

15) The calcineurin inhibitor cyclosporine has been implicated in which of the following?

A. Allergic interstitial nephritis

B. Thrombotic microangiopathy

C. Chronic interstitial nephritis

D. Hemodynamically mediated kidney injury

E. All of the above

Chapter 32 - Glomerulonephritis

1) In a patient with nephrotic syndrome, which of the following is/are commonly observed characteristic(s)?

A. Proteinuria

B. Edema

C. Hyperlipidemia

D. Hypercoagulable state

E. All of the above

2) Which of the following is/are expected to reduce proteinuria when used for patients with glomerulonephritis?

A. Angiotensin-converting enzyme (ACE) inhibitors

B. Angiotensin II receptor blockers

C. Nonsteroidal anti-inflammatory agents

D. A and B only

E. A, B, and C are expected to reduce proteinuria

3) Which of the following parameters is often used to assess the risk for progressive decline of renal function in patients with glomerulonephritis?

A. Edema

B. Proteinuria

C. Hyperlipidemia

D. Coagulopathy

E. Hematuria

4) Which of the following is the optimal target blood pressure in patients with glomerular disease with GFR <60 mL/min or albuminuria >300 mg/day?

A. 130/80 mmHg

B. 130/90 mmHg

C. 140/80 mmHg

D. 140/90 mmHg

E. 140/70 mmHg

5) Anticoagulation therapy for thrombosis prophylaxis may be considered for patients with which of the following glomerular diseases?

A. Minimal-change nephropathy

B. Focal segmental glomerulonephritis

C. Membranous nephropathy

D. Immunoglobulin A nephropathy

E. Membranoproliferative glomerulonephritis

6) In pediatric patients presenting with nephrotic syndrome, which of the following glomerular disease is likely?

A. Minimal-change nephropathy

B. Focal segmental glomerulonephritis

C. Immunoglobulin A nephropathy

D. Membranous nephropathy

E. Membranoproliferative glomerulonephritis

7) Which of the following agents is often used as first-line therapy for inducing remission in patients with recently diagnosed minimal-change nephropathy?

A. Steroid

B. Cyclosporine

C. Azathioprine

D. Cyclophosphamide

E. Mycophenolate mofetil

8) Which of the following is correct regarding the use of cyclosporine for the treatment of minimal-change nephropathy?

A. Cyclosporine is often effective in inducing remission during relapse

B. Cyclosporine is useful for patients who are steroid dependent

C. The disease-free period is not often sustained after therapy discontinuation

D. A and B only

E. A, B, and C are correct

9) Which of the following are risk factors associated with rapid renal function decline in patients with focal segmental glomerulonephritis?

A. Severe proteinuria

B. High serum creatinine concentration at initial diagnosis

C. Initial steroid resistance

D. Only A and B are correct

E. A, B, and C are correct

10) Which of the following has been shown by meta-analysis to reduce proteinuria in patients with IgA nephropathy?

A. Corticosteroids

B. Cytotoxic agents

C. Fish oil

D. Antiplatelet agents

E. Phenytoin

11) A patient with IgA nephropathy who has normal renal function, isolated microhematuria, and proteinuria less than 1 g/day should be:

A. Observed closely without specific treatment

B. Given fish oil

C. Given steroid treatment

D. Given cytotoxic agents

E. Given mycophenolate mofetil

12) Which of the following is/are commonly considered when selecting the optimal treatment for patients with lupus nephritis?

A. Disease activity according to pathologic findings

B. Duration of symptoms

C. Extent of proteinuria

D. A and B only

E. A, B, and C

13) Which of the following is considered to be protective against the onset of lupus nephritis, relapse of the disease, as well as the development of ESRD and venous thrombosis?

A. Steroid

B. Cytotoxic agent

C. Cyclosporine

D. Mycophenolate mofetil

E. Hydroxychloroquine

14) Annual eye examination for possible retinal toxicity should be conducted for patients receiving which of the following therapy?

A. Fish oil

B. Cytotoxic agent

C. Cyclosporine

D. Mycophenolate mofetil

E. Hydroxychloroquine

15) Which of the following treatments is/are appropriate for poststreptococcal glomerulonephritis?

A. Antibiotic to reduce severity of disease

B. Antibiotic to prevent the spread of infection to family members

C. Fish oil to prevent renal damage

D. A and B only

E. A, B, and C

Chapter 33 - Drug Therapy Individualization for Patients with Chronic Kidney Disease

1) Which of the following is a potential mechanism by which the volume of distribution of drugs is increased in patients with chronic kidney disease (CKD)?

A. Increased plasma protein binding

B. Decreased tissue binding

C. Increased fluid retention

D. Decreased fluid status

2) Unbound drug concentrations for drugs that have narrow therapeutic range should be used to monitor therapy and make dose modifications in patients with CKD.

A. True

B. False

3) Increased concentrations of albumin have been attributed to a reduction in plasma protein binding of acidic drugs.

A. True

B. False

4) Which volume of distribution (V_D) is increased in patients with oliguric acute renal failure accompanied by fluid overload?

A. Volume of the central compartment (V_c)

B. Volume of the terminal phase (V_β)

C. Volume of distribution at steady state (V_{ss})

D. Volume of distribution area (V_{area})

5) Which of the following statements regarding drug metabolism in patients with renal insufficiency is *true*?

A. Nonrenal clearance of medications is not dependent on whether the reduction in renal function is acute or chronic in nature

B. Only OATP uptake activity is reduced in patients with renal insufficiency and not an alteration in cytochrome P450 (CYP) activity

C. Metabolites of drugs may have pharmacologic activity similar to or dissimilar to that of the parent drug

D. Practical consequences of metabolite accumulation are easy to predict based on the current data available

6) Which of the following statements regarding estimation of renal function is *true*?

A. Estimation of creatinine clearance (CL_{cr}) or glomerular filtration rate (GFR) can be used in patients with fluctuations in serum creatinine concentrations

B. Measured CL_{cr} or GFR, by urine collections, is the quickest and most accurate method used to evaluate initial drug dosage regimens.

C. Using the modification of diet in renal disease (MDRD) equation resulted in similar drug dosing recommendations compared to using the Cockcroft–Gault (C–G) equation.

D. More data are available regarding the use of C–G equation to guide drug dosing in CKD patients; thus, drug dosing recommendations should continue to be based on CL_{cr}estimated by C–G.

7) Based on recent dosage-adjustment guidelines and references, which of the following CL_{cr} ranges appropriately represents mild, moderate, and severe renal insufficiency?

A. Mild: 90 to 115 mL/min (1.50 to 1.92 mL/s), moderate: 60 to 89 mL/min (1 to 1.49 mL/s), severe: 30 to 59 mL/min (0.50 to 0.99 mL/s)

B. Mild: 60 to 89 mL/min (1 to 1.49 mL/s), moderate: 30 to 59 mL/min (0.5 to 0.99 mL/s), severe: 10 to 30 mL/min

C. Mild: 50 to 80 mL/min (0.84 to 1.34 mL/s), moderate: 20 to 49 mL/min (0.33 to 0.83 mL/s), severe: < 20 mL/min (<0.33 mL/s)

D. Mild: 70 to 100 mL/min (1.17 to 1.67 mL/s), moderate: 50 to 69 mL/min (0.84 to 1.15 mL/s), severe: < 50 mL/min (<0.84 mL/s)

8) Which of the following statements regarding estimating the total body clearance (CL) or elimination rate constant (*k*) of patients using the Rowland and Tozer method is*true*?

A. The fraction of the drug that is eliminated renally unchanged (f_e) in subjects with normal renal function is known

B. Drugs with alternation in drug's metabolism may be used

C. Drug obeys nonlinear kinetic principles

D. The change in CL and *k* are disproportional to CL_{cr}

9) A patient who has a CL_{cr} of 15 mL/min (0.25 mL/s) is to receive an antibiotic that has an f_e of 80%. Based on this information, calculate the kinetic parameter/dosage-adjustment factor (Q).

A. 0.3

B. 0.5

C. 0.22

D. 0.15

10) Which of the following statements regarding the effects of dose and dosing interval adjustments in patients with reduced renal function is *true*?

A. If the dose is reduced while the dosing interval remains unchanged, the peak will be higher and the trough lower

B. If the dose remains unchanged while the dosing interval is increased, the peak and trough concentrations in patients with reduced renal function will be similar to those in patients with normal renal function

C. If the dose is reduced while the dosing interval remains unchanged, the peak and trough concentrations in patients with reduced renal function will be similar to those in patients with normal renal function

D. If the dose remains unchanged while the dosing interval is increased, the peak will be higher and the trough lower

11) A patient with diabetes who has a CL_{cr} of 25 mL/min (0.42 mL/s) is to receive a pain medication that has an f_e of 60%. Based on this information, calculate the most appropriate *dose* for this patient. The normal dose (D_n) is 900 mg.

A. 350 mg

B. 900 mg

C. 250 mg

D. 475 mg

12) A 54-year-old, 95-kg man with a measured CL_{cr} of 31 mL/min (0.52 mL/s) is to receive IV ceftazidime. The usual dose of ceftazidime is 2 g every 8 hours for patients with normal renal function. Calculate the dose you would recommend to be given every 12 hours. The relationship between ceftazidime clearance (CL/F) and renal function is CL (mL/min) = 1.15 (CL_{cr}) + 10.6.

A. 1,350 mg every 12 hours

B. 1,025 mg every12 hours

C. 2,000 mg every12 hours

D. 1,500 mg every12 hours

13) Which of the following statements regarding drug dialyzability by peritoneal dialysis is *true*?

A. Drug compounds that are unionized at physiologic pH will diffuse across the member more slowly than ionized compounds

B. Blood flow and peritoneal membrane surface area are intrinsic properties of the peritoneal membrane that affect drug removal

C. Peritoneal dialysis is more effective than hemodialysis at removing drugs

D. There is a similar relationship between peritoneal drug clearance and molecular weight, protein binding, and V_D (i.e., high peritoneal drug clearance in a highly protein bound drug).

14) Which of the following drugs is *most* likely to be removed by conventional hemodialysis (i.e., hemodialysis using a cellulose membrane)?

A. Amlodipine (MW = 567; V_D = 21 L/kg; plasma protein binding >95%)

B. Atenolol (MW = 266; V_D = 1.1 L/kg; plasma protein binding = 3%)

C. Digoxin (MW = 781; V_D = 4 to 7 L/kg; plasma protein binding = 20% to 25%)

D. Vancomycin (MW = 1,449; V_D = 0.47 to 1.1 L/kg; plasma protein binding = 52% to 60%)

15) A 67-year-old, 72-kg man with a residual CL_{cr} of 5 mL/min (0.08 mL/s) is also receiving high-flux dialysis for 4 hours on Tuesdays, Thursdays, and Saturdays. He is to receive IV gentamicin for a urinary tract infection and the first dose to be given is 150 mg after his hemodialysis treatment. Calculate the concentration at the end of the 30-minute infusion (C_{max}) and plasma concentration prior to the next dialysis session (C_{bD}), which is 44 hours away. The relationship between gentamicin clearance (CL/F) and renal function is CL (mL/min) = 0.983 (CL_{cr}). The V_D of gentamicin is 0.23 L/kg.

A. C_{max} is 7.3 and C_{bD} is 2.3

B. C_{max} is 9.2 and C_{bD} is 4.2

C. C_{max} is 10.9 and C_{bD} is 3.3

D. C_{max} is 15.3 and C_{bD} is 6.3

Chapter 34 - Disorders of Sodium and Water Homeostasis

1) An 85-year-old woman (weight, 55 kg [121 lb]; height, 5′4″ [163 cm]) presents to the emergency room (ER) with new onset twitching and seizures likely due to abruptly developing hypovolemic hypotonic hyponatremia. Her serum sodium concentration in the ER is 118 mEq/L (118 mmol/L). How many liters of 0.9% NaCl would be needed to replace this patient's sodium deficit? (Note: assume a desired serum sodium concentration of 130 mEq/L [130 mmol/L].)

A. 0.58 L

B. 1.9 L

C. 2.1 L

D. 2.6 L

2) Usual doses of synthetic vasopressin (DDAVP) will be most effective if the patient has which one of the following disorders?

A. Nephrogenic diabetes insipidus

B. Central diabetes insipidus

C. Heart failure

D. Syndrome of inappropriate antidiuretic hormone (SIADH)

3) A patient who was started on furosemide approximately 2 weeks ago presents with a significantly decreased blood pressure, increased heart rate, and significant orthostasis. His serum sodium concentration is found to be 165 mEq/L (165 mmol/L). Which one of the following would be the most appropriate initial fluid to administer to this patient?

A. 0.9% NaCl

B. Dextrose 5% in water

C. 3% NaCl

D. 0.45% NaCl

4) A patient is admitted with a serum glucose concentration of 900 mg/dL (50 mmol/L) and a serum sodium concentration of 125 mEq/L (125 mmol/L). He appears mildly dehydrated, but he has no obvious central nervous system-related symptoms. This patient's hyponatremia should be treated with administration of which one of the following?

A. 3% NaCl to replace the sodium deficit

B. Dextrose 5% in water to replace the free water deficit

C. Insulin to correct the hyperglycemia and 0.9% NaCl to correct the hypovolemia

D. 3% NaCl to correct the hypovolemia and insulin to correct the hyperglycemia

5) Thiazide diuretics like hydrochlorothiazide are most likely to cause which one of the following sodium disorders?

A. Hypovolemic hypernatremia

B. Hypovolemic hyponatremia

C. Hypervolemic hypernatremia

D. Hypervolemic hyponatremia

6) A patient is admitted to the ED with altered sensorium. Which one of the following can be used alone to quickly approximate the serum osmolality?

A. Serum sodium concentration

B. Serum potassium concentration

C. Serum glucose concentration

D. Serum blood urea nitrogen concentration

The following case is used for Questions 7, 8, 9:
A.F. is a 71-year-old man (weight, 65 kg) being evaluated for possible lung cancer after a mass was seen on a chest X-ray. Upon physical exam, he has good skin turgor, no lower extremity edema, and appears well hydrated. He has no complaints. Labs were drawn just before this clinic visit and were reported as follows:

Glucose 93mg/dL; U_{osm} 395 mOsm/kg; U_{Na} 29mEq/L; S_{Na} =120mEq/L; S_{Cl} =89mEq/L; TCO_2 =17mEq/L
Calcium 6.9mg/L; albumin 2g/L; SK =2.4mEq/L; BUN = 23mg/L; S_{Cr} =0.8mg/dL

In corresponding SI units:
Glucose 5.2; U_{osm} 395; U_{Na} 29; S_{Na} =120; S_{Cl} =89; TCO_2 =17
Calcium 1.73; albumin 20; S_K = 2.4; BUN = 8.2; S_{Cr} =71

7) What is the *most* likely cause of A.F.'s hyponatremia?

A. Excess sodium excretion

B. Nephrogenic diabetes insipidus

C. GI tract fluid losses.

D. SIADH

8) The medical intern has never managed a patient with severe hyponatremia like A.F. and asks your assistance in developing a plan. His serum sodium concentration remains at 120 mEq/L (120 mmol/L). Which of the following is the *maximum* serum sodium concentration which should be obtained in 6 hours *if* the serum sodium concentration is increased at the *maximum* recommended rate?

A. 123 mEq/L (123 mmol/L)

B. 126 mEq/L (126 mmol/L)

C. 132 mEq/L (132 mmol/L)

D. 140 mEq/L (140 mmol/L)

9) After about 2 weeks of fluid restriction, A.F.'s sodium remains low. His physician would like to start him on demeclocycline for chronic management of hyponatremia. Which of the following is the most appropriate plan for demeclocycline dosing?

A. 300 mg once daily initially, increased to 300 mg 2 times/day after 7 days.

B. 300 mg 3 times/day initially, increased to 600 mg 3 times/day after 7 days.

C. 300 mg 2 times/day initially, increased to 600 mg 2 times/day if the sodium concentration remains low after 24 hours.

D. 300 mg 4 times/day, increased to 600 mg 4 times/day after 48 hours.

10) A 65-year-old man (weight, 80 kg [176 lb]) was started on furosemide approximately 1 week ago for significant heart failure and pulmonary edema. He presents today with a BP of

60/30 mm Hg, heart rate of 150 bpm, and significant orthostasis. His serum sodium concentration is 170 mEq/L (170 mmol/L). Which of the following would be the *most* appropriate initial intervention?

A. A 1000-mL IV bolus of 5% dextrose in water (D_5W) over 30 minutes

B. A 1000-mL IV bolus of 0.9% NaCl over 60 minutes

A 500-mL IV bolus of 0.9% NaCl over 30 minutes

D. A 500-mL IV bolus of 5% dextrose /0.45% NaCl over 30 minutes

11) Which diuretic has the greatest ability to increase the fractional excretion of sodium (FeNa)?

A. Spironolactone

B. Metolazone

C. Furosemide

D. Hydrochlorothiazide

12) A 68-year-old man with severe heart failure currently lives at home with his wife. His glomerular filtration rate is 60 mL/min (1 mL/s). His physician has progressively increased his dose of furosemide to 120 mg every 6 hours to control his edema but without success. What is the most appropriate change to his diuretic therapy at this time?

A. Increase the furosemide dosage to 150 mg every 6 hours

B. Change to a continuous furosemide infusion

C. Begin torsemide; discontinue furosemide

D. Begin metolazone; continue furosemide

13) A 36-year-old man's bipolar disorder has been treated with lithium for several years. He now reports that he has had to urinate more frequently than normal over the past several weeks. This problem has gotten progressively worse and has been accompanied by increased thirst. The patient's serum sodium is 146 mEq/L (146 mmol/L), and his 24-hour urine output is 5 L. Which of the following is the most appropriate treatment of this patient's condition?

A. Intranasal desmopression 10 mcg once daily

B. Amiloride 5 mg orally once daily

C. Dextrose 5% in water intravenously at 48 mL/h for 24 hours

D. Water restriction to less than 1000 mL/day

14) A 61-year-old man (weight, 90.9 kg [200 lb]; height, 6'4″ [193 cm]) who has had vomiting and diarrhea for 4 days is admitted for dehydration, and he fell this morning when he tried to get out of bed. He has not been keeping fluids down for at least 48 hours. His serum sodium concentration on admission was 124 mEq/L (124 mmol/L). What is his extracellular fluid (ECF) deficit?

A. 2.2 L

B. 4.4 L

C. 9.5 L

D. 16.5 L

15) Which one of the following drugs has the effect of producing a large volume of water excretion without concomitantly affecting electrolyte excretion?

A. Furosemide

B. Chlorthalidone

C. Spironolactone

D. Tolvaptan

Chapter 35 - Disorders of Calcium and Phosphorus Homeostasis

1) A common malignancy associated with hypercalcemia from PTH-related protein is:

A. Breast

B. Prostate

C. Leukemia

D. Cervical

E. Multiple myeloma

2) A 68-year-old female presents with a serum total calcium of 13.1 mg/dL (3.28 mmol/L) secondary to primary hyperparathyroidism. Which of the following are symptoms are associated with hypercalcemia?

A. Dyspnea

B. Weakness

C. Polyuria

D. Bradycardia

E. Weakness and polyuria

3) A 56-year-old male with Stage 4 prostate cancer presents to the emergency department with profound weakness, abdominal pain with nausea and vomiting, and profound dehydration. Laboratory analysis reveals: sodium 135 mEq/L (135 mmol/L), potassium 4.5 mEq/L (4.5 mmol/L), chloride 101 mEq/L (101 mmol/L), bicarbonate 24 mEq/L (24 mmol/L), serum creatinine 1.2 mg/dL (106 µmol/L) (baseline 1.0 mg/dL [88 µmol/L]) and BUN 40 mg/dL (14.3 mmol/L), total calcium 14.2 mg/dL (3.55 mmol/L). What is the most likely cause of his hypercalcemia?

A. Primary hyperparathyroidism

B. Secondary hyperparathyroidism associated with kidney disease

C. Bone metastases

D. Excessive endogenous Vitamin D production

4) Which of the following is the *most appropriate* initial therapy for this patient?

A. Hemodialysis with a low calcium bath

B. High dose loop diuretic

C. Saline hydration

D. IV bisphosphonate

E. Subcutaneous calcitonin

5) A 65-year-old female with her first episode of asymptomatic hypercalcemia secondary to metastatic breast cancer presents with a serum calcium of 12.2 mg/dL (3.05 mmol/L). The decision is made to initiate therapy with an agent that inhibits bone resorption. Based on the efficacy and toxicity profile of the following agents, which would be the *most appropriate* to initiate in this patient?

A. Glucocorticoids

B. Ibandronate

C. Gallium nitrate

D. Mithramycin

6) Which of the following would be the treatment of choice for a 80-year-old female with osteoporosis and chronic hypercalciuria who has had several episodes of calcium oxalate nephrolithiasis?

A. Thiazide diuretic

B. Calcium restricted diet

C. Lithotripsy

D. Calcium binding exchange resin

7) A pharmacist counseling a patient on cinacalcet-induced hypocalcemia should include which of the following?

A. Itching

B. Constipation

C. Muscle spasms

D. Polyuria

8) The *most appropriate* therapy for hypocalcemia in a patient with advanced chronic kidney disease and elevated parathyroid hormone would be:

A. Ergocalciferol

B. Calcium carbonate

C. Calcium acetate

D. Calcitriol

9) A 35-year-old male is status post a parathyroidectomy and develops hungry bone syndrome with seizures and tetany postoperatively. His ionized calcium is 1 mmol/L. Which of the following is the *best* initial management?

A. Calcium chloride 1 g IV

B. Calcium carbonate 500 mg IV

C. Calcium gluconate 2 g IV

D. Lorazepam 1 mg IV

10) A 65-year-old patient with chronic kidney disease stage 4 (estimated GFR 35 mL/min/1.73 m^2). Her present medications include lisinopril 40 mg once a day, furosemide 80 mg twice a day, and metoprolol succinate 50 mg once a day. She is scheduled to have a colonoscopy and she is advised to purchase a sodium phosphate bowel preparation (Fleet Phospho-Soda). Which of the following does not put her at increased risk for phosphate nephropathy or acute renal failure?

A. Chronic kidney disease

B. Lisinopril therapy

C. Metoprolol therapy

D. Diuretic therapy

11) A 65-year-old male on hemodialysis for 3 years is being treated for hyperphosphatemia. He has been on sevelamer carbonate 800 mg three times a week a day and cinacalcet 90 mg once a day. He presents to a clinic with tingling in his hands and around his mouth. Laboratory data include: corrected calcium 7.2 mg/dL (1.80 mmol/L), phosphorus 6.8 mg/dL (2.20 mmol/L). The *most likely* cause of his tingling is:

A. Hyperphosphatemia

B. Hypophosphatemia

C. Hypercalcemia

D. Hypocalcemia

12) Which of the following would be the best choice for phosphate binder therapy in JM based on the above data?

A. Aluminum hydroxide

B. Calcium acetate

C. Lanthanum carbonate

D. Sevelamer hydrochloride

13) A patient presents to the emergency department obtunded and nonresponsive. A family member describes the patient as a “raging alcoholic”. The patient has received several liters of IV B vitamins in 5% dextrose in water. Labs reveal: potassium 4.5 mEq/L (4.5 mmol/L), phosphorus 0.8 mg/dL (0.26 mmol/L), albumin 1.2 g/dL (12 g/L), and total corrected calcium 8.3 mg/dL (2.08 mmol/L). Which of the following best describes the pathogenesis of his hypophosphatemia?

A. Increased renal excretion

B. Extracellular fluid dilution

C. Redistribution

D. Binding to serum calcium

14) Myocardial dysfunction related to hypophosphatemia is most likely caused by which of the following?

A. Altered cardiac conduction

B. Depletion of cardiac ATP stores

C. Myocardial cell apoptosis

D. All of the above

15) Based on the patient presentation and laboratory data in Question 13 what would be the most appropriate phosphorus supplement to initiate?

A. Potassium phosphate powder orally

B. Sodium phosphate IV

C. Sodium phosphate solution orally

D. Increase phosphorus content in his meals

16) An 85-year-old hemodialysis patient who resides in a nursing home develops hypophosphatemia (serum phosphorus 1.1 mg/dL [0.36 mmol/L]) secondary to limited oral intake associated with advanced dementia. His other laboratory data include: serum potassium 6.2 mEq/L (6.2 mmol/L) and total corrected calcium 8.5 mg/dL (2.13 mmol/L). Which of the following is the best therapy to initiate in this patient?

A. Neutra-Phos-K

B. K-Phos Neutral

C. Neutra-Phos

D. Potassium phosphate in his dialysis line

Chapter 36 - Disorders of Potassium and Magnesium Homeostasis

1) Which of the following is an appropriate first-line agent for nonsymptomatic hyperkalemia?

A. Albuterol

B. Sodium polystyrene sulfonate

C. Sodium bicarbonate

D. Insulin + dextrose

2) Which of the following drugs would be expected to result in hyperkalemia?

A. Hydrochlorothiazide

B. Candesartan

C. Furosemide

D. Dopamine

3) A patient has the following symptoms on presentation: lethargy, decreased deep tendon reflexes, and somnolence. She most likely has which of the following conditions?

A. Hypokalemia

B. Hyperkalemia

C. Hypomagnesemia

D. Hypermagnesemia

4) Which of the following is immediate first-line therapy for hyperkalemia associated with ECG changes?

A. Furosemide 40 mg orally

B. Calcium gluconate 1 g IV

C. Sodium bicarbonate 50 mEq (50 mmol) IV

D. Regular insulin 10 units IV

5) Which of the following statements regarding IV potassium is correct?

A. The infusion rate should not exceed 10 mEq/h (10 mmol/h) in a peripheral line

B. IV potassium is preferred in all hospitalized patients

C. Potassium should be diluted in dextrose 5% water

D. Continuous electrocardiogram (ECG) monitoring is always necessary when infusing potassium

6) A significant side effect of oral potassium preparations is:

A. Hypomagnesemia

B. Nephrolithiasis

C. Gastrointestinal (GI) upset

D. Cholangitis

7) A patient presents with a Chvostek's sign. He most likely has which of the following conditions?

A. Hypokalemia

B. Hyperkalemia

C. Hypomagnesemia

D. Hypermagnesemia

8) A patient presents with a peaked t-wave and widened QRS complex on ECG. He most likely has which of the following conditions?

A. Hypokalemia

B. Hyperkalemia

C. Hypomagnesemia

D. Hypermagnesemia

9) Your patient develops hyperkalemia (without ECG changes) as a result of severe metabolic acidosis. Which of the following options is considered the first-line treatment option?

A. IV calcium gluconate

B. Insulin + dextrose

C. Albuterol

D. Sodium bicarbonate

10) Which of the following are limitations of magnesium replacement therapy?

A. Intramuscular therapy is often painful and intolerable to the patient

B. Oral therapy can result in a high incidence of diarrhea

C. Intravenous infusion can result in flushing and hypotension

D. All of the above

Chapter 37 - Acid–Base Disorders

Questions 1 to 3

A 23-year-old man was found to be apneic and unresponsive in the surgery ward following reconstructive knee surgery. Three hours ago, his nurse had reprogrammed his hydromorphone patient-controlled analgesia (PCA) because he was complaining that he could not get enough pain relief when he pressed the PCA button. While he is being assessed and resuscitated, and administered a dose of naloxone 10 mg IV × 1, an arterial blood gas sample was taken, revealing the following: pH 7.08, Pco_2 80 mm Hg (10.6 kPa), HCO_3 23 mEq/L (23 mmol/L). His most recent serum labs demonstrated: Na 130 mEq/L (130 mmol/L), Cl 111 mEq/L (111 mmol/L), and TCO_2 23 mEq/L (23 mmol/L).

1) His acid–base disturbance is:

A. Respiratory alkalosis

B. Metabolic alkalosis

C. Respiratory acidosis

D. Metabolic acidosis (nonanion gap)

E. Metabolic acidosis (anion gap)

2) The maintenance of the proper pH of the body fluids may be the result of:

A. Urine alkalinization

B. Control of respiratory ventilation

C. Buffering systems in the stomach

D. Active secretion of OH^- into the filtrate by the kidney tubule cells

E. Alternation in the amount of acid produced in the stomach

3) Which of the following statements is most true regarding the expected compensation for this acid–base disturbance?

A. Compensation will occur over the next 24 hours as his respiratory rate decreases

B. Compensation will occur over the next 24 hours as his respiratory rate increases

C. Compensation will occur over the next 2 hours by the renal elimination of bicarbonate

D. Compensation will occur over the next 2 hours as his respiratory rate increases

E. Compensation will occur over the next 2 hours as his respiratory rate decreases

Questions 4 to 8

A 68-year-old man (weight = 70 kg; height = 69 inches [175 cm]) who recently took antibiotics for a skin infection presents with 10 episodes of watery diarrhea per day for the last 5 days. His most recent ABG is: pH 7.30, Pco_2 34 mm Hg (4.5 kPa), HCO_3 17 mEq/L (17 mmol/L), and his Po_2 80 mm Hg (10.6 kPa) and his most recent serum labs demonstrate: Na 135 mEq/L (135 mmol/L), Cl 114 mEq/L (114 mmol/L), and TCO_2 17 mEq/L (17 mmol/L).

4) His acid–base disturbance is:

A. Respiratory alkalosis

B. Metabolic alkalosis

C. Respiratory acidosis

D. Metabolic acidosis (nonanion gap)

E. Metabolic acidosis (anion gap)

5) What is his base deficit?

A. 9 mEq/L (9 mmol/L)

B. 4 mEq/L (4 mmol/L)

C. 19 mEq/L (19 mmol/L)

D. 40 mEq/L (40 mmol/L)

E. 5 mEq/L (5 mmol/L)

6) A decision is made to administer IV sodium bicarbonate to this patient. What is the most appropriate sodium bicarbonate loading dose to administer?

A. 343 mEq/L (343 mmol/L)

B. 833 mEq/L (833 mmol/L)

C. 595 mEq/L (595 mmol/L)

D. 245 mEq/L (245 mmol/L)

E. 168 mEq/L (168 mmol/L)

7) Which of the following medications is associated with hyperchloremic metabolic acidosis?

A. Fentanyl

B. Metformin

C. Sodium chloride 0.9%

D. Furosemide

E. Acetazolamide

8) Which of the following statement is true regarding RTA?

A. Proximal RTA (type II) is caused by a defect in the proximal tubule, which results in excessive amounts of bicarbonate being reabsorbed

B. Distal RTA (type IV) can be caused by aldosterone resistance and often results in hypokalemia

C. Proximal RTA (type II) and distal RTA (type I) are associated with sodium wasting and hypokalemia

D. RTA is usually associated with a high anion gap resulting from an increase in unmeasured anions

E. None of the above are true

Questions 9 to 11

A 31-year-old man presents with lethargy, weakness, labored respiration, and confusion. He has had diabetes for 15 years, and has been suffering from the "intestinal flu" for a day or so, for which he has been avoiding food to help prevent further vomiting and "make his stomach ache go away". Since he stopped eating, he thought that it would be a good idea to stop taking his insulin. When seen in the emergency department his urine dipped positive for both glucose and ketones and his breath had a strange sweet, fruity smell. The following arterial blood gas data were obtained: pH 7.27, Pco_2 23 mm Hg (3.1 kPa), and HCO_3 10 mEq/L (10 mmol/L). His most recent serum chemistries are as follows: Na 132 mEq/L (132 mmol/L), Cl 83 mEq/L (83 mmol/L), K 4.9 mEq/L (4.9 mmol/L), and glucose 345 mg/dL (19.1 mmol/L).

9) His acid–base disturbance is:

A. Respiratory alkalosis

B. Metabolic alkalosis

C. Respiratory acidosis

D. Metabolic acidosis (nonanion gap)

E. Metabolic acidosis (anion gap)

10) Which of the following statements is true regarding the expected compensation for his acid-based disturbance:

A. The acid–base disturbance has already compensated; no further compensation will occur

B. Compensation will occur within days by renal reabsorption of bicarbonate

C. Compensation will occur within hours by increasing the respiratory rate

D. Compensation will occur within hours by decreasing the respiratory rate

E. Compensation will occur within days by renal elimination of bicarbonate

11) Which of the following is false regarding lactic acidosis?

A. Renal disease is a risk factor for the development of metformin-induced lactic acidosis

B. Administration of lorazepam 0.5 mg IV q8 h increases a patient's risk for experiencing lactic acidosis

C. Administration of propofol at a dose of 100 mcg/kg/min for 3 days increases a patient's risk for experiencing lactic acidosis

D. Occurs when the serum lactate concentration exceeds 4 mEq/L (4 mmol/L)

E. Nucleoside-analog reverse transcriptase-induced lactic acidosis is caused by the inhibition of the enzyme DNA polymerase gamma

Questions 12 to 15

12) Acid–base disturbances in renal failure present as _____ initially due to impaired ammoniagenesis, but progress to _____ as retention of phosphates and sulfates increases.

A. Metabolic alkalosis; metabolic acidosis

B. Chloride-responsive metabolic alkalosis; chloride-unresponsive metabolic alkalosis

C. Metabolic acidosis; metabolic alkalosis

D. Hyperchloremic metabolic acidosis; high anion gap metabolic acidosis

E. Chloride-unresponsive metabolic alkalosis; chloride-responsive metabolic alkalosis

13) Which of the following statements is false regarding respiratory acidosis?

A. Respiratory acidosis can occur in a patient having an acute exacerbation of chronic obstructive pulmonary disease

B. Respiratory acidosis is a primary increase in Pco_2 resulting in a decreased pH

C. The Pco_2 is the primary stimulus to breathe in a patient with end-stage chronic obstructive pulmonary disease, who is managed at home with oxygen therapy

D. Renal bicarbonate reabsorption is an expected response to respiratory acidosis

E. None of the above are false

14) Which of the following therapies would be most likely administered to a patient with a sodium chloride-resistant metabolic alkalosis?

A. Arginine monohydrochloride

B. Shohl's solution

C. Ammonium chloride

D. IV hydrochloric acid

E. Spironolactone

15) Which of the following would not be considered a viable treatment option for a patient with a life-threatening acute metabolic acidosis (plasma bicarbonate of 8 mEq/L [8 mmol/L] and pH <7.20)?

A. Hemodialysis

B. Sodium bicarbonate

C. Tromethamine (THAM)

D. Sodium acetate

E. All of the above are viable treatment options

Chapter 38 - Alzheimer's Disease

1) The most common form of dementia in older adults is:

A. Lewy body dementia

B. Vascular dementia

C. Alzheimer's disease (AD)

D. Organic Brain Syndrome

2) Genetic susceptibility to late-onset AD is primarily linked to:

A. Apolipoprotein E4 genotype

B. Presenilin gene mutations

C. Amyloid precursor protein mutations

D. Apolipoprotein E2 genotype

3) Which of the following statements is true regarding the pathophysiology of AD?

A. AD is caused by amyloid plaques

B. AD is caused by neurofibrillary tangles

C. AD is caused by inflammatory processes in the brain

D. The cause of AD is unknown

Please use the following case for questions 4 to 8:
KP is a 78-year-old WM who was recently diagnosed with AD. He was diagnosed approximately 10 years earlier with hypertension and diabetes and has been treated for these conditions ever since. KP's wife reports that he has become increasingly confused, agitated, and suspicious. He became lost while driving the car in his neighborhood. At the time of the diagnosis, his physician prescribed Aricept® at the usual starting dose of 5 mg daily at bedtime.

4) In clinical situations similar to KP's, what should patients and families be counseled about expectations from their AD therapy?

A. Drug therapy will usually halt the progression of the disease

B. The risk of adverse events with drug therapy outweighs the benefit in mild disease, so drug therapy should be delayed until the disease is moderately severe.

C. The time to reach significant functional decline may be delayed, but the disease will continue to progress

D. Memory noticeably improves for most patients when therapy is initiated

5) The most common Aricept® adverse event that KP and his wife should be counseled about is:

A. Elevated blood pressure

B. Agitation

C. Hyperglycemia

D. Nausea, diarrhea, or vomiting

6) KP had a Mini-Mental Status Examination (MMSE) score of 21 at the time of diagnosis. Would it be considered appropriate to add memantine to his drug regimen at this time?

A. Yes, since he is in the moderate stage of AD

B. Yes, since he is unlikely to respond to Aricept®

C. No, since he is in the mild stage of AD

D. No, since memantine should not be added to cholinesterase inhibitor therapy

7) What is the preferred initial treatment for agitation in AD?

A. Antidepressants

B. Antipsychotics

C. Benzodiazepines

D. Nonpharmacological behavioral interventions

8) How frequently should KP's donepezil therapy be monitored at a follow-up visit with the prescriber?

A. Weekly until efficacy is demonstrated and then monthly

B. Monthly until side effects are manageable and then every 6 months

C. Two to three months after starting therapy and then every 6 months unless significant changes in cognition, function, or behavior arise

D. Annually unless significant side effects arise

Please use the following case for questions 9 and 10:
LR is an 84-year-old woman who was diagnosed with AD 4 years ago. Her MMSE score is 14, and her symptoms first became apparent to her family about 1 year before the diagnosis. LR's chief complaint is difficulty with her short-term memory. She is unable to perform most activities of daily living and does not recognize her caregivers on some days.

9) Which of the following drugs or drug combinations has NOT been shown to be effective therapy for patients in LR's stage of AD?

A. Donepezil 10 mg every night at bedtime + Rivastigmine 6 mg twice daily

B. Donepezil 10 mg every night at bedtime

C. Memantine 10 mg twice daily

D. Donepezil 10 mg every night at bedtime + Memantine 5 mg twice daily

10) LR's husband asks about using Tylenol PM® to help his wife with falling asleep. What recommendations should you give LR concerning the use of Tylenol PM®?

A. Tylenol PM® is preferred over prescription medications to treat insomnia in Alzheimer's patients

B. Tylenol PM® may enhance the effects of cholinesterase inhibitors, so concurrent use should be avoided

C. Tylenol PM® should be avoided because there is a pharmacokinetic drug interaction between diphenhydramine and cholinesterase inhibitors

D. Tylenol PM® should be avoided because diphenhydramine may worsen cognitive function

Please use the following case for questions 11 to 13:
AM is an 87-year-old man who was diagnosed with AD and vascular dementia 2 years ago. He was started on donepezil 5 mg/day and has been treated with this dose for the past 2 years. He reports no difficulties tolerating this therapy. He is taking warfarin for atrial fibrillation and lisinopril for hypertension. His memory has declined significantly in the last several months.

11) Which of the following is true regarding AM's donepezil therapy?

A. AM is receiving an appropriate maintenance dose of donepezil

B. AM has not been titrated to the maintenance dose of donepezil

C. Donepezil is not appropriate therapy for patients in AM's stage of AD

D. Donepezil should be avoided in patients with vascular dementia and atrial fibrillation

12) AM's wife confides that she is planning to start AM on a supplement for brain health that contains *Ginkgo biloba*. What is your advice to AM's wife concerning use of Ginkgo?

A. Ginkgo is appropriate therapy for patients like AM because it is more effective than donepezil in patients with AD.

B. Ginkgo therapy should be avoided in AM because it worsens cognitive outcomes in patients with AD

C. Ginkgo therapy should be avoided in AM because it interacts with warfarin

D. Ginkgo therapy is appropriate therapy for AM because it is effective for treating dementia and atrial fibrillation

13) Which of the following is an appropriate recommendation for AM's wife regarding managing AM's cardiovascular disease?

A. Since AM has been diagnosed with dementia, it is no longer necessary to treat his hypertension

B. Since AM has been diagnosed with dementia, the risks of using warfarin outweigh the benefits

C. Since AM has been diagnosed with dementia, clopidogrel and aspirin should be added to AM's drug regimen to improve vascular health

D. Since AM has been diagnosed with dementia, treating hypertension and atrial fibrillation is recommended to optimize brain vascular health

14) Which of the following is true regarding huperzine A therapy?

A. Huperzine is more effective than prescription cholinesterase inhibitors

B. Huperzine can safely be added to cholinesterase inhibitor therapy

C. Huperzine is available only by prescription

D. Huperzine is a cholinesterase inhibitor

15) JH's mother has AD and her father, who is her mother's primary caregiver, has seemed "forgetful" recently. JH seeks your advice about treatment options for her father. Which of the following would be appropriate advice for JH?

A. Recommend *Ginkgo biloba* because Ginkgo has been shown to slow the progression of mild cognitive impairment to dementia

B. Recommend discussing donepezil therapy with his prescriber because cholinesterase inhibitors have been shown to slow the progression of mild cognitive impairment to dementia

C. Recommend naproxen therapy because naproxen has been show to slow the progression of mild cognitive impairment to dementia

D. Recommend a caregiver support group or other stress reduction strategies because caregiver stress can contribute to memory difficulties

Chapter 39 - Multiple Sclerosis

1) At the time of diagnosis, the *most* common form of multiple sclerosis (MS) is?

A. Primary-progressive

B. Relapsing-progressive

C. Relapsing-remitting

D. Secondary-progressive

2) JM is a 32-year-old male who presents with gait disturbance and loss of balance. His magnetic resonance imaging (MRI) shows a high T2 burden of disease with multiple lesions in multiple locations in the brain. Which of the following is NOT a poor prognostic factor for JM?

A. Age

B. Gender

C. Initial presentation of symptoms

D. MRI presentation

3) In the case above, JM's physician decides to initiate natalizumab therapy 300 mg IV once monthly. Which of the following is NOT a monitoring parameter?

A. Liver function tests

B. John Cunningham virus (JCV) antibodies

C. Tuberculin skin test

D. MRI

4) What is the life-threatening adverse effect of natalizumab?

A. Agranulocytosis

B. Cardiotoxicity

C. Thrombocytopenia

D. Progressive multifocal leukoencephalopathy

5) Which of the following is used in the treatment of an exacerbation (attack/relapse) of MS?

A. Oral Immunoglobulin

B. High-dose IV methylprednisolone

C. Low-dose oral prednisone

D. Mitoxantrone

6) PJ is a 47-year-old female with RRMS who presents to the clinic with complaints of fatigue. The physician decides to prescribe a medication for the symptomatic treatment of fatigue. Which of the following agents would NOT be appropriate?

A. Methylphenidate 5 mg every morning

B. Modafinil 200 mg every morning

C. Amantadine 100 mg twice daily

D. Dextromethorphan/quinidine 20 mg/10 mg every morning

7) Which is *true* about spasticity in MS?

A. Spasticity occurs early after a patient is diagnosed with MS

B. Increased muscle tone due to spasticity in late stage MS can help to decrease falls due to weakness

C. Fluoxetine is a first-line agent to treat spasticity

D. Baclofen is useful orally, intrathecally, and intravenously for spasticity

8) When counseling a patient about interferon therapy for MS, you should communicate to the patient which important aspect regarding efficacy?

A. He or she will start to notice a change in symptoms immediately

B. He or she must freeze the medication

C. It may take up to 1 or 2 years to see a change on the MRI

D. The medication works best if a double dose is given

9) Interferon-β_{1a} (Rebif) differs from Interferon-β_{1a} (Avonex) in what way?

A. Rebif is given once per week

B. Rebif is given as an intramuscular injection

C. Rebif is given three times per week

D. Rebif causes tissue necrosis

10) SW is a 55-year-old male currently on Interferon-β_{1a} (Rebif) 44 mcg subcutaneously three times per week, warfarin, and amiodarone. In the past 6 months, he has had three exacerbations and multiple new enhancing lesions on MRI. Following discontinuation of Rebif what is the best next step in his course of therapy?

A. Natalizumab

B. Glatiramer acetate

C. Mitoxantrone

D. Fingolimod

11) Which of the following statements is *true* regarding medications used for relapsing remitting MS?

A. Interferon-β_{1a} (Avonex) is given as an intramuscular injection once weekly

B. Interferon-β_{1a} (Betaseron) is given as an intramuscular injection three times per week

C. Glatiramer acetate is given as a subcutaneous injection three times per week

D. Glatiramer acetate has a side-effect profile consistent with flu-like symptoms

12) Which of the following is *not* a side effect seen with interferon therapy (Avonex, Betaseron, Extavia, or Rebif)?

A. Flu-like symptoms

B. Depression

C. Chest tightness and facial flushing

D. Skin injection-site reactions

13) Which of following is a serious adverse effect of mitoxantrone?

A. Hepatotoxicity

B. Renal failure

C. Skin-site reactions

D. Cardiotoxicity

14) SC, a 30-year-old female, was prescribed teriflunomide 7 mg orally daily for the treatment of her relapsing MS. Which of the following counseling points is FALSE?

A. Teriflunomide is a pregnancy category X medication and a contraceptive method is recommended.

B. Alopecia, nausea, headache, and paresthesias are common side effects associated with teriflunomide.

C. A cholestyramine washout may be considered if pregnancy is desired.

D. Teriflunomide causes secondary leukemia in 1 in 1,400 patients.

15) Efficacy of the interferons can be attributed to which mechanism of action?

A. β_1-blockade

B. α_1- and β_1-blockade

C. Immune system dysregulation in the CNS

D. Immune system modulation in the periphery and at the blood–brain barrier

16) Glatiramer acetate (Copaxone) is thought to act by which of the following mechanisms of action?

A. Decrease matrix metalloproteinases

B. Inhibition of the proliferation of reactive T-cells

C. Decreased number of adhesion molecules

D. Blockage of the binding of major histocompatibility (MHC) class II products to myelin basic protein (MBP)

17) MB, a 35-year-old female with RRMS, asks you about an MS drug that requires a 6-hour observation period. Which of the following drugs requires a 6-hour observation monitoring period?

A. Mitoxantrone

B. Natalizumab

C. Fingolimod

D. Interferon-β_{1a}

18) CC, a 52-year-old female, is having difficulty walking without stopping every 25 feet (7 to 8 m) or so to take a break. Which of the following drugs is the most appropriate choice for CC at this time?

A. Mitoxantrone

B. Modafinil

C. Interferon-β_{1a} (Extavia)

D. Dalfampridine

Chapter 40 - Epilepsy

1) In the pharmacoresistant epilepsy patient which factor(s) *best* defines QOL:

A. Seizure freedom

B. Addressing anxiety and/or depression

C. Patient being employed

D. A decrease in seizure frequency

E. Both B and D

2) Nonpharmacologic therapy of the epilepsy patient can involve all of the following in the appropriate patient *except*:

A. Temporal lobe surgery

B. Low glycemic index diet treatment

C. Acupuncture

D. Vagal nerve stimulator

E. Extratemporal lobe surgery

3) Which antiepileptic drug's (AED's) serum level is *most* affected by the pregnancy state?

A. Levetiracetam

B. Lamotrigine

C. Phenytoin

D. Carbamazepine

E. Lacosamide

4) Which AED is *most* likely to associated with polycystic ovary syndrome?

A. Vigabatrin

B. Primidone

C. Phenytoin

D. Zonisamide

E. Valproic acid

5) Which item is of *no* value in the workup of a person who presents to the emergency room with a first time generalized tonic–clonic (GTC) seizure?

A. Serum glucose

B. Serum creatinine

C. 30 minute electroencephalogram (EEG)

D. Serum prolactin level

E. All are useful

6) Which AED should *not* be effective in the treatment of absence epilepsy?

A. Phenytoin

B. Valproic acid

C. Ethosuximide

D. Carbamazepine

E. Both A and D are correct

7) Which AED has the longest elimination half-life?

A. Lacosamide

B. Oxcarbazepine

C. Tiagabine

D. Clobazam

E. Topiramate

8) Which AED is *not* used for refractory complex partial seizures?

A. Vigabatrin

B. Lacosamide

C. Levetiracetam

D. Valproic acid

E. Rufinamide

9) Which AED is *not* considered a controlled substance?

A. Felbamate

B. Clobazam

C. Pregabalin

D. Lacosamide

E. Phenobarbital

10) Mr. H. has a history of calcium phosphate kidney stones and is allergic to sulfa. Which is the *worst* choice of AED to use in the treatment of Mr. H's partial seizures?

A. Topiramate

B. Lacosamide

C. Zonisamide

D. Carbamazepine

E. Oxcarbazepine

11) Which AED is more likely to cause speech or language problems?

A. Valproic acid

B. Tiagabine

C. Phenytoin

D. Topiramate

E. None are correct

12) Which patient is *most* likely going to have successful discontinuation of his AED(s)?

A. Patient with a seizure-free period for 1 to 2 years

B. An onset of seizures after 35 years of age

C. Seizure control within 1 year of onset

D. Patient with complex partial seizures as opposed to GTC seizures

E. Patient with an abnormal EEG only when he is asleep

13) In a patient taking an older enzyme inducer AED, which form of birth-control does *not* need a back-up method to avoid pregnancy:

A. Transdermal contraceptive patch

B. Emergency contraceptive pill

C. Medroxyprogesterone depot injection

D. Hormone-releasing intrauterine device system

E. Both C and D

14) Which AED has saturable GI absorption and therefore should not be given in large doses all at once:

A. Gabapentin

B. Tiagabine

C. Pregabalin

D. Lacosamide

E. None are correct

15) Which statement is *false*?

A. GTC seizures are always associated with loss of consciousness

B. Complex partial seizures can involve sensory or focal motor features

C. Absence seizures can be almost nondetectable

D. The interictal period is a period where the patient is delirious

E. None are false

Chapter 41 - Status Epilepticus

An 8-year-old boy is brought by an ambulance to the ER. His mother says he had fallen to the ground and began twitching and jerking both arms and legs. The jerking lasted for about 2 to 3 minutes, after which he would wake up, but have no memory of the event. This pattern of events recurred for what seemed like an hour before the ambulance arrived. His mother said he had a fever with upper respiratory tract symptoms a day or two ago. She relayed he does not have epilepsy but does have asthma. He takes Flonase (fluticasone), Singular (montelukast) daily, and albuterol as needed. As you are taking the history, the child begins to convulse again.

1) Which of the following is true?

- A. He has nonconvulsive status epilepticus
- B. He has cluster seizures
- C. He has partial status epilepticus
- D. He has generalized convulsive status epilepticus

2) As part of the above patient's work up, which test would be the least helpful in evaluating his seizure etiology?

- A. Toxicology screen
- B. Blood cultures
- C. Chest X-ray
- D. Blood electrolytes

3) Given that the child is actively seizing, what would you recommend administering?

A. Phenytoin or fosphenytoin

B. Diazepam and phenobarbital

C. Lorazepam

D. Do not give anticonvulsants until an EEG is performed

4) Which of the following is a risk factor for a poorer outcome in this child?

A. Prolonged duration of seizure

B. Age

C. Unknown etiology

D. Gender

5) A patient seen in the ED was given lorazepam and an appropriate loading dose of fosphenytoin for new-onset generalized tonic-clonic (GTC) seizures. He initially responded to the lorazepam, but his seizures have persisted to the point that he is intubated, given vercuronium, and transferred to the intensive care unit. At this time, his convulsions have ceased. Which of the following would you recommend?

A. Give phenobarbital

B. Obtain an EEG

C. Give dextrose

D. Give midazolam

6) Concurrent administration of diazepam and phenobarbital may result in _____ , so additional ICU monitoring may be needed.

A. Arrhythmia

B. Purple glove syndrome

C. Respiratory depression

D. Extravasation

7) Responsiveness to anticonvulsive treatment in GCSE is affected by which of the following?

A. Patient age

B. History of epilepsy

C. Patient adherence

D. Duration of seizure

8) Which of the following is true regarding fosphenytoin and phenytoin?

A. Phenytoin causes pruritus, whereas fosphenytoin does not

B. Fosphenytoin does not cause arrhythmias, whereas phenytoin does

C. A postloading phenytoin concentration can be drawn at 1 hour, whereas a postloading dose of fosphenytoin concentration can be drawn at 2 hours after a dose

D. Phenytoin (50 mg/min) reaches concentrations more slowly than fosphenytoin (50 PE/min)

9) Which of the following is true regarding diazepam and lorazepam?

A. Lorazepam has a more rapid onset than diazepam

B. Diazepam is not metabolized while lorazepam is metabolized

C. Lorazepam has a longer duration of action in the brain than does diazepam

D. Diazepam can be given IM, while lorazepam can only be given IV

A 57-year-old (wt 85 kg) man with a history of complex partial seizures (2 per month) presents to the ER because of a "long" seizure at home that was at least partly witnessed by his wife. He was given lorazepam and is now seizure free. He chronically received Carbatrol 600 mg twice a day and Keppra 1,500 mg twice a day. All chemistries, including liver function test and CBC, are normal.

10) What would you recommend as part of this patient's work-up?

A. STAT EEG

B. STAT MRI

C. Carbamazepine concentration

D. Levetiracetam concentration

11) Tachyphylaxis is most commonly associated with which of the following?

A. Midazolam

B. Ketamine

C. Phenytoin

D. Phenobarbital

A 27-year-old female is admitted to the ED unresponsive and seizing with a presumed diagnosis of viral encephalopathy. She was transferred to the ICU and intubated. At an outlying hospital, she received diazepam 0.25 mg/kg IV two times and phenytoin 20 mg/kg IV. Upon arrival to your unit, she received phenobarbital 20 mg/kg IV, but is still seizing.

12) What would you recommend be done next?

A. Fosphenytoin 5 PE/kg IV

B. Valproate 30 mg/kg IV

C. Midazolam 0.2 mg/kg

D. Phenobarbital 20 mg/kg IV

13) Which of the following should only be administered IV in GCSE?

A. Midazolam

B. Topiramate

C. Diazepam

D. Fosphenytoin

14) Which of the following is associated with metabolic acidosis?

A. Propylene glycol

B. Levetiracetam

C. Lidocaine

D. Valproate

15) Which of the following may be given by IV push?

A. Phenytoin

B. Fosphenytoin

C. Phenobarbital

D. Midazolam

Chapter 42 - Acute Management of the Brain Injury Patient

1) Which of the following causes the greatest number of TBI-related deaths annually in the United States?

A. Falls

B. Assaults

C. Motor vehicle accidents

D. Accidents in the workplace

2) A 25-year-old male (LH) is admitted to the trauma ICU after falling from a ladder at home. He has been orotracheally intubated for mechanical ventilation prior to arrival. Vital signs are BP 85/53 and HR 110; height 5′10″ (178 cm) and weight 88 kg. His admission CT scan shows a moderately sized subarachnoid hemorrhage. He opens his eyes to pain, has sluggish but reactive pupils bilaterally, and localizes to painful stimuli. What is his Glasgow Coma Score?

A. 6

B. 8

C. 10

D. 12

3) Which of the following factors in LH is associated with a poor prognosis (i.e., higher mortality)?

A. Age

B. Pupil exam

C. CT scan findings

D. Need for mechanical ventilation

4) Which of the following is the most immediate goal for LH following admission to the trauma center?

A. ICP less than or equal to 20 mm Hg (2.7 kPa)

B. SBP greater than or equal to 90 mm Hg

C. MAP greater than or equal to 90 mm Hg

D. $Paco_2$ less than or equal to 35 mm Hg (4.7 kPa)

5) LH has a ventriculostomy placed for ICP monitoring. Which of the following best describes general ICP and CPP goals in adults with severe TBI?

A. ICP less than 25 mm Hg (3.3 kPa); CPP greater than 90 mm Hg (12.0 kPa)

B. ICP greater than 50 mm Hg (6.7 kPa); CPP less than 20 mm Hg (2.7 kPa)

C. ICP less than 50 mm Hg (6.7 kPa); CPP greater than 20 mm Hg (2.7 kPa)

D. ICP less than 20 mm Hg (2.7 kPa); CPP greater than 50 mm Hg (6.7 kPa)

6) Soon after transferring to the trauma ICU, LH rapidly develops mild to moderate intracranial hypertension with a stable neurologic exam. Which of the following nonpharmacologic interventions should be used at this time?

A. Ventriculostomy drainage

B. Hyperventilation to Paco2 of 25 mm Hg (3.3 kPa)

C. Therapeutic hypothermia

D. Decompressive craniotomy

7) Which of the following is the most appropriate regarding posttraumatic seizure prophylaxis in LH?

A. No seizure prophylaxis is needed

B. Levetiracetam 500 mg IV Q12 h

C. Phenytoin 1000 mg × 1 then 100 mg IV Q8 h

D. Phenytoin 1500 mg × 1 then 150 mg IV Q8 h

8) Later in the day, LH becomes moderately agitated and requires sedation. Which of the following is the most appropriate option to provide both sedation and ongoing ICP control?

A. Morphine 4 mg IV Q1 h, as needed for agitation

B. Propofol infusion titrated to effect

C. Midazolam infusion titrated to effect

D. Pentobarbital infusion titrated to effect

9) At 24 hours after admission, LH has a follow-up head CT scan that shows the intracranial bleeding is unchanged compared to the admission CT scan. His ICP control has been acceptable so far. Which of the following is the most appropriate regarding deep vein thrombosis (DVT) prophylaxis in LH?

A. Use only mechanical devices until the hematoma fully resolves

B. Start enoxaparin 30 mg SQ Q12 h within the next 3 days

C. Start enoxaparin 30 mg SQ Q12 h on hospital day seven

D. Consider full anticoagulation because TBI patients have a very high DVT risk

10) The following morning, LH's ICP is 30 mm Hg (4.0 kPa) and his BP is 90/65 mm Hg despite being given 2 L of normal saline IV for hypotension overnight. Which of the following is the most appropriate to help optimize LH's ICP and CPP at this time?

A. Hypertonic saline bolus

B. Mannitol bolus

C. Increase the current sedation therapy

D. Short-term hyperventilation

11) As the day progresses, LH's hypotension resolves (current MAP 85 mm Hg) but his ICP remains in the high 20s. He is currently receiving fentanyl IV 50 mcg/h, propofol IV 1 mg/kg/h, and mannitol IV 50 g × 1. Current serum sodium is 144 mEq/L (144 mmol/L) and osmolality 325 mOsm/kg (325 mmol/kg). Which of the following is the most appropriate at this time?

A. No therapy is needed because CPP is greater than 50 mm Hg

B. Increase current sedative infusions while monitoring MAP closely

C. Hypertonic saline bolus (3% NaCl 150 mL IV × 1 over 1 hour)

D. Pentobarbital 25 mg/kg IV loading dose then 1 mg/kg/h infusion

12) LH continues to have moderate intracranial hypertension (ICP 30 to 35 mm Hg) over the next 2 days. He is currently on fentanyl IV 250 mcg/h and propofol IV 5 mg/kg/h. Current serum sodium is 151 mEq/L (151 mmol/L) and osmolality 330 mOsm/kg (330 mmol/kg). The ventriculostomy is open to drainage. Which of the following is the most appropriate at this time?

A. Pentobarbital 25 mg/kg IV loading dose then 1 mg/kg/h infusion

B. Titrate propofol up until ICP is controlled or hypotension returns

C. Hyperosmolar therapy with mannitol or hypertonic saline bolus

D. Initiate therapeutic hypothermia to target 33°C (91°F)

13) Which of the following changes in patient outcomes has occurred in centers that have adopted clinical pathways/management guidelines that follow the BTF/AANS guidelines?

A. Increased patient survival

B. Increased costs from more intense care

C. Fewer complications (e.g., infections)

D. No overall effect was seen

14) Which of the following currently shows the most promise as a neuroprotective agent given early in the acute phase after TBI?

A. Amantadine

B. HMG Co-A reductase inhibitors

C. Progesterone

D. Methylphenidate

15) Which of the following currently has the strongest data favoring its use in the rehabilitation phase after TBI?

A. Progesterone

B. Donepezil

C. Antidepressants

D. Amantadine

Chapter 43 - Parkinson's Disease

1) Parkinson's disease (PD) is characterized by a nigrostriatal deficiency of:

A. Acetylcholine

B. Dopamine

C. Norepinephrine

D. Serotonin

2) Parkinson's disease is characterized by the presence of bradykinesia and one or more of the following *except*:

A. Postural instability

B. Rest tremor

C. Rigidity

D. Seizures

3) Which of the following is the most effective drug for PD?

A. Amantadine

B. Carbidopa/levodopa

C. Pramipexole

D. Rasagiline

4) An 80-year-old with newly diagnosed PD and a history of memory problems and confusion is best treated with:

A. Amantadine

B. Carbidopa/levodopa

C. Trihexyphenidyl

D. Ropinirole

5) Entacapone is useful because it:

A. Is a MAO-B inhibitor

B. Is a D_2 receptor agonist

C. Blocks peripheral COMT

D. Inhibits dopa decarboxylase

6) All the following can produce parkinsonian symptoms *except*:

A. Haloperidol

B. Metoclopramide

C. Prochlorperazine

D. Selegiline

7) A patient with PD is taking carbidopa/levodopa 25/100 mg three times a day, and reports that he tends to slow down 2 hours before his next carbidopa/levodopa dose. This patient is most likely experiencing:

A. Delayed onset response

B. Dyskinesia

C. Freezing

D. Wearing off

8) A 70-year-old patient taking carbidopa/levodopa 25/100 mg three times a day for PD is experiencing end-of-dose wearing off. The best next step is to:

A. Add tolcapone

B. Consider surgery

C. Add trihexyphenidyl

D. Increase carbidopa/levodopa to four times daily

9) A 63-year-old patient taking carbidopa/levodopa 25/100 mg four times a day for PD is experiencing end-of-dose wearing off. Which of the following is *least likely* to be efficacious:

A. Adding entacapone

B. Adding rasagiline

C. Switching to carbidopa/levodopa sustained release

D. Switching to carbidopa/levodopa/entacapone

10) A 72-year-old patient with moderate-severe PD was placed on carbidopa/levodopa 25/100 mg three times a day by his primary care physician. He is complaining of nausea and stomach upset since starting the medication and wants to stop it. The best recommendation is to:

A. Increase the carbidopa/levodopa dose

B. Recommend taking carbidopa/levodopa with food

C. Discontinue the medication and switch to rasagiline

D. Discontinue the medication and switch to a ropinirole

11) A 71-year-old patient has had PD for 8 years and is currently taking pramipexole 1.5 mg three times a day and carbidopa/levodopa 25/100 mg four times a day. His wife claims that he is complaining of seeing spiders and bugs running across the floor and imaginary children in their house. The first thing to consider is:

A. Add clozapine

B. Add quetiapine

C. Taper and stop the pramipexole

D. Taper and stop the carbidopa/levodopa

12) A 60-year-old PD patient is experiencing dyskinesias that are bothersome. The patient is on carbidopa/levodopa 25/100 mg two tablets at 7 AM and one tablet at 11 AM, 2, 5, 8, and 11 PM. Her current dosing regimen provides good symptom relief throughout the day. Which of the following is most appropriate:

A. Add amantadine

B. Add entacapone

C. Add rasagiline

D. Add pramipexole

13) A 63-year-old with PD has done well on rasagiline 1 mg once a day and ropinirole 4 mg three times a day for several years. In the past, higher doses of ropinirole resulted in excessive drowsiness. He now needs more symptom relief. The best recommendation would be to:

A. Add carbidopa/levodopa

B. Add entacapone

C. Add pramipexole

D. Consider deep brain stimulation (DBS) surgery

14) All of the following statements are true regarding carbidopa/levodopa *except*:

A. It is neuroprotective

B. It is the most effective antiparkinsonian agent

C. Administration with food can minimize nausea

D. It is associated with the development of motor complications

15) A 74-year-old patient has had PD for 8 years and is currently taking carbidopa/levodopa 25/100 mg one and a half tablets five times a day. His past medical history is also significant for pancytopenia. He is experiencing troublesome hallucinations. Previous attempts to lower his carbidopa/levodopa dose were not tolerated due to significant worsening of motor symptoms. The best recommendation is to add:

A. Chlorpromazine

B. Clozapine

C. Haloperidol

D. Quetiapine

Chapter 44 - Pain Management

1) Regarding pain, all the following descriptors are applicable except:

A. Always subjective

B. Always associated with actual tissue damage

C. A sensory and emotional experience

D. A primary reason patients seek medical advice

E. Often undertreated

2) Nociceptive pain can be considered:

A. Protective

B. Always harmful

C. Pathophysiologic

D. For the most part emotional

E. Chronic

3) Neuropathic pain is:

A. Not distinctly different from nociceptive pain

B. Due partly to anatomical and biochemical changes in the nervous system

C. Always seen immediately after traumatic injury

D. Is sustained by the normal processing of sensory input by the peripheral or CNS

E. All the above

4) Which of the following factors would be the most important characteristic to consider when assessing immediate postoperative pain:

A. Other chronic or acute painful syndromes the patient may be experiencing

B. Time elapsed since the patient was in surgery

C. Surgical technique

D. Amount of tissue damage

E. Amount of time spent in surgery

5) The following drug would be preferred when treating acute mild pain in a 30-year-old male with no significant medical history and who is taking no medications:

A. Nalbuphine

B. Tapentadol

C. Codeine with acetaminophen

D. Acetaminophen

E. Tramadol

6) Therapeutic doses of morphine given to patients in severe pain will cause:

A. Temperature to drop

B. Respiratory depression

C. An increase in myocardial oxygen demand in myocardial ischemia

D. Increase in the propulsive contractions of the GI tract

E. None of the above

7) The following would be the drug(s) of choice in severe acute pain secondary to surgery:

A. Morphine plus a nonsteroidal antiinflammatory drug (NSAID)

B. Morphine alone

C. Meperidine alone

D. Meperidine plus promethazine

E. Pentazocine plus a NSAID

8) An indication for the use of an opioid analgesic on an as-needed basis is:

A. The patient is over 75 years old

B. The patient is depressed

C. The pain is episodic

D. The analgesic is administered epidurally

E. The patient is experiencing constipation

9) When treating moderate to severe cancer pain:

A. Assess the frequency/duration/occurrence/etiology of the pain

B. Use sustained-release opioid in an around the clock fashion

C. Use as-needed immediate-release opioids with the sustained-release drugs

D. Titrate opioids based on the response of patients

E. All the above

10) Chronic noncancer pain:

A. Is often psychosomatic

B. Is best treated with nalbuphine

C. Is exacerbated with the use of tricyclic antidepressants

D. Is best treated in a multidisciplinary fashion

E. Usually affects blood pressure and heart rate

11) The best treatment of opioid induced constipation is:

A. Prevention with the proper intake of fluids, fiber, and stimulant laxatives

B. Prevention by using buprenorphine

C. Concomitant use of acetaminophen with the opioid

D. Concomitant use of tramadol

E. All the above

12) The use of nonpharmacologic therapies:

A. Should be considered only in chronic noncancer pain

B. Are beneficial in chronic and acute pain

C. Can detract from pharmacologic treatment in cancer patients

D. Can induce a number of opioid-like side effects

E. All of the above

13) When pregabalin is being considered to treat fibromyalgia pain, which of the following applies?

A. This drug is not indicated in fibromyalgia, thus should not be used

B. It can be used only with an opioid

C. It works best when used with NSAIDs

D. B and C

E. None of the above

14) When treating bone pain associated with breast cancer, the best therapy would be:

A. Ibuprofen plus amitriptyline

B. Ibuprofen plus sustained-release opioids plus as-needed immediate-release opioids

C. Ibuprofen plus as-needed immediate-release opioids

D. Ibuprofen plus amitriptyline plus sustained-release opioids

E. Amitriptyline plus sustained-release opioids

15) Which of the following is appropriate pain management?

A. Ibuprofen alone to treat acute severe pain

B. Tricyclic antidepressants to treat acute pain

C. Hydromorphone dose titration in severe pain

D. Codeine in children

E. All the above

Chapter 45 - Headache Disorders

1) Which one of the following is *not* a type of primary headache disorder?

A. Migraine

B. Tension

C. Cluster

D. Vascular

2) Migraine pain is believed to result from activity in which one of the following systems?

A. Perivascular

B. Trigeminovascular

C. Extravascular

D. Tuberofundibular

3) In migraine, genetic factors appear to:

A. Lower the threshold for environmental triggers

B. Raise the threshold for environmental triggers

C. Decrease levels of excitatory amino acids

D. Maintain normal levels of extracellular potassium

4) The migraine aura is defined by which one of the following?

A. Positive focal neurologic symptoms that follow an attack

B. Negative focal neurologic symptoms that precede an attack

C. Positive and negative focal neurologic symptoms that follow an attack

D. Positive and negative focal neurologic symptoms that precede or accompany an attack

5) Migraine aura typically lasts:

A. Less than 20 minutes

B. Less than 60 minutes

C. More than 60 minutes

D. More than 120 minutes

6) Which one of the following is *not* part of International Headache Society diagnostic criteria for migraine without aura?

A. At least two attacks

B. Headache that lasts 4 to 72 hours (untreated or unsuccessfully treated)

C. Has at least two of the following characteristics: unilateral location, pulsating quality, moderate or severe intensity, aggravation by or avoidance of routine physical activity

D. During headache at least nausea, vomiting, or both or photophobia and phonophobia

7) Which one of the following drugs or drug classes is not used in the acute treatment of migraine headaches?

A. Ergot alkaloids

B. Antidepressants

C. NSAIDs

D. Serotonin agonists

8) Patients may benefit from adherence to a wellness program that may include all of the following *except*:

A. Regular exercise

B. Regular eating habits

C. Smoking cessation

D. Increasing caffeine intake

9) Medication-overuse headache is most commonly implicated with use of:

A. Simple analgesics

B. Combination analgesics

C. Antiemetics

D. Triptans

10) Which of the following is the most common adverse effect of the ergotamine derivatives?

A. Painful extremities

B. Peripheral ischemia

C. Nausea and vomiting

D. Continuous paresthesias

11) Which of the following preventive treatments for migraine is associated with weight loss?

A. Propranolol

B. Divalproex sodium

C. Topiramate

D. Amitriptyline

12) Which one of the following oral triptans has the longest half-life, but the slowest onset of action?

A. Sumatriptan

B. Eletriptan

C. Naratriptan

D. Frovatriptan

13) Which triptan has established efficacy in migraine prevention?m of 5.2 mEq/L (5.2 mmol/L) and serum creatinine of 2.2 mg/dL (194 µmol/L). Which of the following interventions is most appropriate?

A. Naratriptan

B. Sumatriptan

C. Frovatriptan

D. Eletriptan

14) Which of the following would *not* be appropriate for migraine prophylaxis?

A. Metoprolol

B. Acebutolol

C. Atenolol

D. Propranolol

15) Which of the following vitamins has evidence to support efficacy in migraine prevention?

A. Ascorbic acid

B. Riboflavin

C. Cyanocobalamin

D. Pyridoxine

Chapter 46 - Attention Deficit/Hyperactivity Disorder

1) A 4-year-old child exhibits severe hyperactivity at preschool and is asked to leave preschool due to aggression, impulsivity, and not following directions. Which of the following statements describes an additional diagnostic criterion needed for a diagnosis of ADHD?

A. The symptom duration would need to be 6 weeks.

B. These impairing symptoms are also present at home.

C. The patient must be at least 6 years old.

D. Learning disability needs to be ruled out.

2) A teacher's aide asks about the most likely cause of ADHD in a 4-year-old exhibiting extreme hyperactivity, aggression, impulsivity, and poor attention. The best answer is:

A. Too much sugar in the child's diet

B. High intake of food preservatives and dye

C. Genetic vulnerability

D. Poor parenting skills

3) The 4-year-old should be evaluated for a deficiency in this substance that has been shown to contribute to ADHD symptoms:

A. Ferritin

B. Cyanocobalamin

C. Folate

D. Omega-3 fatty acids

4) When an ADHD diagnosis is confirmed in a 4-year-old patient, first-line treatment recommended by the American Academy of Pediatrics is:

A. Methylphenidate extended-release preparations

B. Parent training and behavioral modification

C. Meditation, yoga, and physical therapy

D. Clonidine or guanfacine extended release

5) Which of the following statements most accurately describes the clinical presentation of adult ADHD?

A. Hyperactivity and impulsivity are the most prominent symptoms.

B. Adults frequently report racing thoughts, mood swings, and insomnia.

C. Disorganization increases in frequency and severity over the adult life span.

D. Distractibility and difficulty with sustained mental effort are most common.

6) What structural brain changes are thought to correlate with persistence of ADHD into adulthood?

A. Enlarged ventricles and diminished basal ganglia

B. Underdevelopment of the locus ceruleus

C. Overgrown lateral lobe of the amygdala

D. Cortical thinning and decreased brain volume

7) Which of the following is an appropriate starting dose of stimulant for a 12-year-old (100 lb [45 kg]) child with ADHD?

A. Lisdexamphetamine 50 mg in the morning

B. OROS methylphenidate 27 mg in the morning

C. Methylphenidate transdermal patch 20 mg in the morning

D. Mixed amphetamine salts extended release 30 mg in the morning

8) Which ADHD medication has the greatest potential for abuse?

A. Dextroamphetamine

B. Atomoxetine

C. Guanfacine

D. Clonidine

9) Counseling should be provided on the risk of hepatotoxicity with which medication used for the management of ADHD?

A. Lisdexamfetamine

B. Bupropion

C. Atomoxetine

D. Guanfacine

10) Which of the following statements is accurate regarding the treatment of ADHD in a patient with Tourette's disorder?

A. Stimulants such as methylphenidate should be avoided as they worsen tics.

B. Atypical antipsychotic can effectively improve attention and manage tics.

C. α_2-Adrenergic agonists may improve both ADHD symptoms and tics.

D. Atomoxetine is first-line agent due to its ability to lessen anxiety over tics.

11) JP takes methylphenidate immediate release three times a day with good efficacy, but his parents want to avoid in-school dosing. Which long-acting preparation is most appropriate and longest lasting?

A. Lisdexamfetamine

B. Dexmethylphenidate extended release

C. Methylphenidate sustained release

D. OROS methylphenidate

12) In a patient with bipolar disorder and severe inattention and hyperactivity, the following treatment plan is most appropriate:

A. Stabilize mood first with lithium or other mood stabilizer, and then consider whether low-dose stimulant is needed for inattention and hyperactivity.

B. Manage ADHD with bupropion, and then consider adding a mood stabilizer or atypical antipsychotic once ADHD symptoms are controlled.

C. Avoid stimulants as they will worsen mania; give atomoxetine to manage both ADHD and bipolar disorder.

D. Start extended-release guanfacine to manage ADHD, and then consider adjunctive lithium or atypical antipsychotic.

13) Potential advantages of α-adrenergic agonists over stimulants for ADHD include:

A. More rapid onset of therapeutic effect

B. Less insomnia, anorexia, and growth effects

C. Greater efficacy for inattentive symptoms

D. Effective for children, teens, and adults

14) Children with aggression, conduct disorder, and ADHD have higher rates of _____ compared with children with primarily inattentive type of ADHD.

A. Incarceration and substance abuse

B. Accidental death and unemployment

C. Schizophrenia and delusional disorder

D. Divorce and depression

15) Studies have shown that adjunctive behavioral interventions administered to youth with ADHD:

A. Are more effective than stimulant medications.

B. Are not likely to be administered in the classroom.

C. May allow for lower effective doses of stimulant.

D. Are more effective for inattention than hyperactivity.

Chapter 47 - Eating Disorders

1) The most commonly diagnosed form of eating disorder is which one of the following disease states?

A. Anorexia nervosa

B. Bulimia nervosa

C. Night eating syndrome

D. Eating disorder not otherwise specified

2) Patient A is an overweight female with a BMI = 43 kg/m^2 who presents with symptoms of a suspected eating disorder. She reports a decrease in energy level, has unexplained episodes of crying, and notes a recent loss of interest in things previously found to be enjoyable. She reports disruptive sleep patterns, and at least three times per week she gets up at 1 or 2 in the morning and eats a complete meal. The most likely diagnosis is which of the following?

A. Anorexia nervosa

B. Binge eating disorder

C. Night eating syndrome

D. Bulimia nervosa

3) Abnormalities with which of the following monoamine neurotransmitters have most commonly been linked to anorexia nervosa?

A. Dopamine

B. Serotonin

C. GABA

D. Norepinephrine

4) Anorexia nervosa and bulimia nervosa patients often utilize various methods of purging. The most common method of purging seen across these two diagnostic entities would be which of the following?

A. Laxative abuse

B. Self-induced vomiting

C. Diuretic use

D. Excessive exercise

5) A 15-year-old female patient with anorexia nervosa is most likely to report which of the following complaints following the ingestion of a meal?

A. Nausea and vomiting

B. Stomach cramping

C. Diarrhea

D. Feeling bloated

6) A 23-year-old female with anorexia nervosa is currently undergoing caloric restoration at a rate that her physician feels is too fast and is placing her at risk for further medical complications. The physician is most worried about:

A. Renal failure

B. Bowel obstruction

C. Refeeding syndrome

D. Diabetic ketoacidosis

7) A 16-year-old female presents unable to maintain more than 85% of her normal body weight. She has a fear of gaining weight and has obsessive thoughts with a self-image of being perceived as "fat and ugly." She often induces vomiting after eating her one meal a day for fear of gaining too much weight. Her parents indicate that she has always been underweight, and they do not understand her emotional state and find themselves more frustrated and less supportive of her. Which of the following factors in this case is considered the most positive predictor for a positive response?

A. Poor family relationship

B. Young age of onset

C. Obsessive–compulsive tendencies

D. Presence of purging behavior

8) Cognitive behavioral therapy (CBT) is often one of the first-line treatments in the treatment of anorexia nervosa. One of the primary goals of CBT is to assist the patient in which of the following ways?

A. Overcome distorted thinking.

B. Improve interpersonal relationships.

C. Resolve symptoms of depression.

D. Restore weight above 85% of normal.

9) A 19-year-old, 5 ft 6 in (168 cm), 80-lb (36.4 kg) female is hospitalized for the treatment of anorexia nervosa. She is currently undergoing oral refeeding with liquid formulas; however, she has been somewhat resistant. Nasogastric refeeding has been considered; however, she has recently been more compliant. Which of the following is an appropriate refeeding and controlled weight gain plan?

A. 1,000 cal (≈4,200 J) per day to gain 0.5 to 1 lb (≈0.45 to 0.9 kg) per week

B. 1,300 cal (≈5,400 J) per day to gain 2 to 3 lb (≈0.9 to 1.4 kg) per week

C. 1,800 cal (≈7,500 J) per day to gain 2 to 3 lb (≈0.9 to 1.4 kg) per week

D. 1,500 cal (≈6,300 J) per day to gain 0.5 to 1 lb (≈0.45 to 0.9 kg) per week

10) Recent findings suggest that self-help cognitive behavioral therapy approaches are most effective when combined with:

A. 12-Step programs

B. Gradual caloric introduction

C. Oral antidepressants

D. Nutritional counseling

11) Treatment of bulimia nervosa with antidepressant medications, if effective, is most likely to occur how long after starting therapy?

A. 1 to 2 weeks

B. 3 to 4 weeks

C. 4 to 6 weeks

D. 6 to 8 weeks

12) SSRI antidepressant medications are often initiated in patients with anorexia nervosa, with the most widely studied agent being fluoxetine in the dosing range of 20 to 80 mg/day. Most evidence to date suggests that fluoxetine:

A. Extends the time to relapse

B. Shortens the time to relapse

C. Does not effect the time to relapse

D. Reduces the risk of suicide

13) A recent study of olanzapine and day hospital treatment for anorexia nervosa compared with day treatment alone reported which of the following findings?

A. Olanzapine resulted in greater weight gain and increased obsessions.

B. Olanzapine and day hospital treatment were least effective.

C. Olanzapine and day hospital treatment were most effective.

D. Day hospital treatment resulted in greater weight gain and decreased obsessions.

14) Data from clinical trials and small case reports suggest which of the following off-label antipsychotic dosing regimens to be the most appropriate in treating adults with anorexia nervosa?

A. Fluphenazine 2 mg by mouth twice a day

B. Risperidone 4 mg by mouth at every bedtime

C. Olanzapine 15 mg by mouth daily

D. Quetiapine 25 mg by mouth at every bedtime

15) Cardiovascular collapse that can result from the refeeding syndrome is secondary to:

A. Electrolyte disturbances

B. Rhabdomyolysis

C. Atherosclerosis

D. Torsade de pointes

16) The most effective treatment strategies for binge eating disorders as supported by clinical evidence involve the use of:

A. Antidepressants

B. Antipsychotics

C. Interpersonal psychotherapy

D. Family therapy

17) When screening patients for eating disorders such as anorexia nervosa and bulimia nervosa, which psychiatric condition should be considered in the differential diagnosis?

A. Schizophrenia

B. Depression

C. Obsessive–compulsive disorder

D. All of the above

18) JS is a 22-year-old female of average height and weight who presents with symptoms of anxiety and history of substance abuse, and struggles with difficult interpersonal relationships. On further interview, she admits to being concerned about the way her body looks. She reports that during very stressful times she will often eat way more than her friends do and that afterward she feels very guilty about it. This may happen several times a month. Medication history reveals NKDA, she takes no prescription medications, and uses OTC ibuprofen for mild pain and OTC laxatives after the eating binges. What is the most likely diagnosis for JS?

A. Binge eating disorder (BED)

B. Night eating syndrome (NES)

C. Bulimia nervosa (BN)

D. Anorexia nervosa (AN)

19) All of the following are associated with a complicated course or poor prognosis of bulimia nervosa *except*:

A. Outpatient treatment

B. Psychiatric comorbidity

C. Electrolyte imbalance

D. `Dental caries

20) Which nonpharmacologic treatment approach to BN has the strongest evidence to support its use?

A. Acupuncture

B. Guided self-help

C. Family therapy

D. Cognitive behavioral therapy

21) A 19-year-old female meets diagnostic criteria for bulimia nervosa and is currently in the acute phase of the illness. What is the most appropriate first-line pharmacologic treatment?

A. Bupropion 150 mg by mouth twice a day

B. Fluoxetine 60 mg by mouth daily

C. Olanzapine 20 mg by mouth at bedtime

D. Topiramate 250 mg by mouth daily

22) The female athlete triad consists of all of the following clinical features *except*:

A. Disordered eating

B. Osteoporosis

C. Depressed mood

D. Amenorrhea

23) Osteopenia and osteoporosis are potential long-term complications of eating disorders. What is the preferred method to reverse the bone loss?

A. Estrogen supplementation

B. Normalization of nutrition and restoration of weight

C. High-dose calcium supplementation

D. Bisphosphonate treatment

24) With BN, longer rates of followup care tend to have lower rates of remission.

A. True

B. False

25) Individuals with binge eating disorder may present with the following characteristics:

A. Overweight

B. Excessive exercise

C. Male

D. A and B only

Chapter 48 - Substance-Related Disorders I: Overview and Depressants, Stimulants, and Hallucinogens

1) In the mid- to late 1970s, great attention would be given to the abuse of which of the following drugs whose abuse is currently very low?

A. Methaqualone

B. Oxycodone

C. Alprazolam

D. Synthetic cannabinoids

E. Carisoprodol

2) Tolerance can be defined as:

A. Physiologic adaptation to the effect of drugs, so as to diminish effects with constant dosages or to maintain the intensity and duration of effects through increased dosage

B. Any use of a drug that varies from a socially or medically accepted use

C. The emotional state of craving a drug either for its positive effect or to avoid negative effects associated with its absence

D. Any use of drugs that causes physical, psychological, economic, legal, or social harm to the individual user or to others affected by the drug user's behavior

E. A physiologic state of adaptation to a drug or alcohol, usually characterized by the development of tolerance to drug effects and the emergence of a withdrawal syndrome during prolonged abstinence

3) The most commonly used illicit drug is which of the following?

A. LSD

B. MDMA

C. Marijuana

D. Cocaine

E. Heroin

4) What is the purpose of the Monitoring the Future Study conducted at the University of Michigan?

A. To determine what types of drugs are causing emergency department visits at metropolitan hospitals

B. To study changes in the beliefs, attitudes, and behavior of young people toward drugs in the United States

C. To serve as the primary source of statistical information on the use of illegal drugs by the U.S. population

D. To determine the types of drugs that are associated with drug-related mortality

E. To serve as an early warning system such that prevention and treatment efforts can be tailored to the recent trends in substance abuse

5) Carisoprodol is metabolized in the body to which of the following compounds?

A. Diazepam

B. Norpropoxyphene

C. Chloral hydrate

D. 11-Hydroxyl alprazolam

E. Meprobamate

6) Which of the following compound(s) is (are) a chemical or pharmacologic analog to tetrahydrocannabinol?

A. γ-Butyrolactone (GBL)

B. JW-018

C. Ketamine

D. All of the above

E. A and B only

7) High doses of cocaine and/or prolonged use can trigger symptoms of:

A. Paranoia

B. Hypothyroidism

C. Osteoporosis

D. Lassitude

E. Bradycardia

8) When smoked, crack cocaine has a longer duration of action than powdered cocaine used intranasally.

A. True

B. False

9) Methamphetamine can be manufactured in home laboratories using which of the following as starting materials?

A. LSD

B. Pseudoephedrine

C. γ-Butyrolactone

D. Cocaine

E. Procainamide

10) What is the name of the impurity formed during the clandestine manufacture of MDMA (also known as Ecstasy) that has been shown to be a potent hyperthermic agent?

A. MDMA methyl ester

B. Methamphetamine succinate

C. *para*-Methoxyamphetamine (PMA)

D. Isophenylalanine

E. Normeperidine

11) Which of the following describe the acute effects of synthetic cathinones?

A. They depress the CNS, producing decreased respiration and blood pressure.

B. They stimulate the CNS, producing increased respiration and blood pressure.

C. Users report increased accurate perceptions of time and space.

D. Users can become diabetic in the face of preexisting renal disease.

E. Both A and D are accurate descriptions of the synthetic cathinones.

12) There is increasing evidence that MDMA can cause structural damage to _____ neurons in the brain.

A. Serotonergic

B. Dopaminergic

C. Adrenergic

D. Gabaminergic

E. Cholinergic

13) According to the latest statistics from the Mississippi Marijuana Potency Monitoring Project, the average delta-9-tetrahydrocannabinol (THC) content in tested samples of marijuana in 2007 was:

A. 3.52%

B. 12%

C. 0.625%

D. 65.8%

E. 9.64%

14) What percentage of treated substance-dependent patients will relapse at least once?

A. 10%

B. 25%

C. 50%

D. 75%

E. 90%

15) Which of the following is true regarding ultrarapid detoxification from opiate dependence?

A. This technique has become the "standard of care" for treating opiate dependence.

B. It has been proved to be a cost-effective alternative to outpatient detoxification.

C. More research is needed using rigorous research methods, longer-term outcomes, and comparisons with other methods of treatment before this technique can gain widespread acceptance.

D. This technique has been outlawed by the DEA because of the high rate of relapse and the greater intensity of withdrawal with subsequent episodes of opiate abuse.

E. A recent meta-analysis has shown this technique to be clearly superior to conventional methods of detoxification, in both shortand long-term outcomes.

Chapter 49 - Substance-Related Disorders II: Alcohol, Nicotine, and Caffeine

1) Which of the following benzodiazepines has been shown to be most effective in evidence-based analysis of published studies for treating or preventing alcohol withdrawal?

A. Diazepam

B. Chlordiazepoxide

C. Lorazepam

D. Alprazolam

E. All were shown to be equally effective

2) Thiamine should be administered to suspected chronic alcohol abusers to avoid:

A. Ascites

B. Wernicke's encephalopathy

C. Nystagmus

D. Autonomic dysfunction

E. Cardiac arrhythmias

3) A patient is found to have a blood alcohol concentration (BAC) of 170 mg/dL (37 mmol/L). Which of the following would best describe this patient's clinical condition?

A. Dysphoria (anxiety, restlessness) predominates, and nausea can appear; the drinker has the appearance of a "sloppy drunk."

B. No effect discernible to the untrained observer.

C. Slight impairment of balance, speech, vision, reaction time, and hearing.

D. Euphoria; judgment and self-control are reduced, and caution, reason, and memory are impaired.

E. Onset of coma, possible death because of respiratory arrest.

4) An individual's likelihood of becoming alcohol dependent is related to:

A. Genetic predisposition

B. Environmental factors

C. Pattern and history of alcohol consumption

D. A and B only

E. A, B, and C

5) Clonidine is administered in alcohol withdrawal for what purpose?

A. To treat the symptoms of autonomic rebound

B. To decrease craving

C. To treat agitation unresponsive to benzodiazepine administration

D. All of the above

E. None of the above

6) Beer typically contains what percentage of alcohol by volume?

A. 3%

B. 5%

C. 12%

D. 18%

E. 40%

7) Polly Dent, a 47-year-old secretary, comes into the pharmacy for a refill of her theophylline prescription. Her doctor has told her she must quit smoking. Polly has been smoking since she was 15 years old, and she currently smokes one pack of cigarettes per day. Ms. Dent wants to know if the chewing gum (and/or patches) really works. What should you tell her?

A. Nicotine chewing gum is guaranteed to help her quit smoking; therefore, she should buy some right away.

B. Nicotine chewing gum can help patients with the pharmacologic effects of nicotine withdrawal, but this is only one component of a comprehensive smoking cessation program; behavior modification is an equally important (or more important) part of a good program.

C. Nicotine chewing gum is an effective way to deal with the psychological as well as the physical cravings for a cigarette and should work well by itself.

D. Nicotine chewing gum would be contraindicated in Ms. Dent, so she should consider some other methods of smoking cessation.

E. Nicotine chewing gum is inferior to the patches because it does not provide a constant source of nicotine; besides, it does not taste very good and, hence, you would not recommend it for her.

8) Which of the following is considered a second-line pharmacotherapy for helping people quit smoking?

A. Nicotine patch

B. Bupropion

C. Clonidine

D. Nicotine gum

E. Nicotine nasal spray

9) Which of the following is the only official diagnosis associated with caffeinism in the *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision*(*DSM-IV-TR*)?

A. Caffeine dependence syndrome

B. Caffeine intoxication

C. Caffeine withdrawal syndrome

D. Caffeine-induced seizure disorder

E. Caffeinism

10) Pharmacologically, the risk of developing some meaningful clinical manifestations becomes high when intake exceeds how much caffeine per day?

A. 70 mg/day

B. 100 mg/day

C. 230 mg/day

D. 500 mg/day

E. 630 mg/day

11) Which of the following is a contraindication for using bupropion SR in treating nicotine dependence?

A. Taking a monoamine oxidase inhibitor within 14 days

B. History of hypothyroidism

C. Aspirin allergy

D. All of the above

E. A and B only

12) For smoking cessation, the manufacturer of bupropion recommends a dosage of:

A. 150 mg of the sustained-release product once daily for 3 days and then twice daily for 7 to 12 weeks or longer

B. 300 mg of the sustained-release product once daily and then 300 mg twice daily for a minimum of 6 months

C. 50 mg of the immediate-release product three times daily for 1 year

D. 75 mg of the sustained-release product three times a day for 7 to 12 weeks or longer

E. 150 mg of the immediate-release tablets daily for 3 days and then twice daily for 7 to 12 weeks or longer

13) Patients are instructed to stop smoking during which week of treatment with bupropion?

A. First

B. Second

C. Third

D. Fourth

E. Fifth

14) When children are exposed to environmental smoke or if their mothers smoke during pregnancy, they have a higher risk of all of the following *except*:

A. Respiratory infection

B. Middle ear infections

C. Asthma

D. Sudden infant death syndrome

E. Down's syndrome

15) Which of the following is the most effective treatment of the withdrawal symptoms that follow sudden discontinuation of caffeine intake?

A. Propranolol

B. Naltrexone

C. Acamprosate

D. Reintroduction of caffeine

E. Naloxone

Chapter 50 - Schizophrenia

1) Which of the following is the *most accurate* statement regarding the potential etiology of schizophrenia?

A. Developmental delays in children who later develop schizophrenia indicate that schizophrenia is clearly a developmental disorder.

B. Genetics studies suggest a Mendelian genetic relationship for developing schizophrenia.

C. PET studies indicate that schizophrenia is a degenerative brain disorder.

D. Schizophrenia shows characteristics of both a developmental and a degenerative disorder.

2) Neurotransmitter abnormalities that are thought to exist in schizophrenia include:

A. Excessive synthesis and release of dopamine from presynaptic receptors

B. Decreased density of D_2 receptors in the mesocaudate

C. Hypofunction of glutamatergic pathways

D. Increased density of D_2 receptors in the prefrontal cortex

E. Hyperactivity of glutamatergic pathways

3) Symptom domains that are characteristic of a diagnosis of schizophrenia include all of the following *except*:

A. Cognitive impairment

B. Depression

C. Negative symptoms

D. Positive symptoms

4) Nonpharmacologic interventions that are key components of comprehensive care for individuals with schizophrenia include all of the following *except*:

A. Family psychoeducation

B. Individual supportive therapy

C. Psychoanalysis

D. Social skills therapy

E. Supported housing

5) Which of the following *most accurately* reflects the initial workup (i.e., evaluation) of a patient suspected of having schizophrenia?

A. Mental status examination, physical examination, neurologic examination, social history, laboratory workup, and PET scan

B. Mental status examination, physical examination, neurologic examination, social history, laboratory workup, and MRI scan

C. Mental status examination, physical examination, neurologic examination, social history, family history, and a CSF homovanillic acid (HVA) level

D. Mental status examination, physical examination, neurologic examination, family history, laboratory workup, and a CSF 5-hydroxyindolacetic acid (5-HIAA) level

E. Mental status examination, physical examination, neurologic examination, family history, social history, and laboratory workup

6) According to the PORT recommendations, all of the following antipsychotics are appropriate choices for the treatment of an individual with schizophrenia in its first psychotic break *except*:

A. Olanzapine

B. Perphenazine

C. Quetiapine

D. Risperidone

E. Ziprasidone

7) O.Y. is a 27-year-old male with schizophrenia. This is his fourth psychiatric hospitalization. He has most recently been treated with risperidone. He currently presents in an acute psychotic episode with fulminate suicidal ideation, and a serious suicide attempt prior to hospitalization. Based on this information, which of the following antipsychotics would be the *best choice* for this patient at the present time?

A. Clozapine

B. Haloperidol

C. Iloperidone

D. Risperidone

E. Ziprasidone

8) Which of the following are interventions which may increase the treatment adherence of individuals with schizophrenia?

A. Cognitive behavioral therapy

B. Involvement of families

C. Patient information about the disorder and treatment

D. Consumer to consumer groups

E. All of the above are effective

9) B.W. is a 33-year-old woman with schizophrenia in an acute exacerbation. She has had previous unsuccessful medication trials with risperidone and olanzapine. Her risperidone trial was at a maximum dose of 6 mg/day for 6 months, and her olanzapine regimen was for a maximum dose of 20 mg daily for 9 months. Patient adherence with treatment was deemed to be adequate during the previous medication trials. Based on the

available information, which of the following is the *most appropriate*medication intervention at the present time?

- A. Asenapine
- B. Clozapine
- C. Haloperidol
- D. Quetiapine
- E. Lurasidone

10) The rapid on, rapid off theory of atypicality is *best associated* with which of the following antipsychotics?

- A. Aripiprazole
- B. Olanzapine
- C. Quetiapine
- D. Risperidone
- E. Ziprasidone

11) C.H. is a 25-year-old woman with a diagnosis of schizophrenia. She has been previously treated with haloperidol and risperidone. Since starting risperidone, she has complained of weight gain. In comparing her current weight with that prior to starting risperidone, she has gained about 8 lb. She inquires about a change in medication to an antipsychotic that is less likely to cause weight gain. Based on this request, which of the following would be the *best* choice?

- A. Ziprasidone
- B. Chlorpromazine
- C. Clozapine
- D. Olanzapine
- E. Quetiapine

12) J.B. is a 34-year-old male with a diagnosis of schizophrenia. He has previously been treated with haloperidol, perphenazine, and fluphenazine decanoate. He has had persistent difficulty with extrapyramidal side effects, including Parkinson's symptoms and dystonic reactions. These symptoms have been treated with benztropine and diphenhydramine, but he still has breakthrough EPS symptoms. Which of the following would be the *poorest* antipsychotic treatment option for this patient?

- A. Aripiprazole
- B. Olanzapine
- C. Quetiapine

D. Risperidone

E. Iloperidone

13) B.C. is a 35-year-old woman with a diagnosis of schizophrenia. In the past she has taken haloperidol and risperidone and experienced Parkinson's symptoms on both of these medications. She has been taking olanzapine 15 mg daily for the past 6 months. She recently went to see her family physician for complaints of fatigue, excessive thirst, and frequent urination. Her physician obtains a fasting blood glucose, which is 180 mg%. Although her psychotic symptoms are reasonably well controlled, her physician deems that it is best to change her antipsychotic medication. Based on the information above, which of the following would be the *best* choice?

A. Aripiprazole

B. Clozapine

C. Haloperidol

D. Quetiapine

E. Risperidone

14) D.D. is a 66-year-old man with a diagnosis of schizophrenia. He also has diagnosis of benign prostatic hypertrophy, hypertension, and gastroesophageal reflux disorder (GERD). His medication regimen includes quetiapine, hydrochlorothiazide, metoclopramide, and ranitidine. Over the past 3 months he has developed a shuffling gait, drooling, and a resting tremor. In screening the patient's patient profile, which of the following might represent a drug interaction?

A. Ranitidine is inhibiting the metabolism of quetiapine, causing the patient to develop Parkinson's symptoms.

B. Hydrochlorthiazide alteration of quetiapine metabolism is causing Parkinson's symptoms.

C. Ranitidine's dopaminergic blockade in combination with quetiapine is producing Parkinson's symptoms.

D. Metoclopramide alteration of quetiapine metabolism is causing Parkinson's symptoms.

E. Metoclopramide's dopaminergic blockade in combination with quetiapine is producing Parkinson's symptoms.

15) After initiating a new antipsychotic in a patient with schizophrenia, appropriate routine monitoring parameters are *best* reflected by:

A. Brief standardized clinical rating scales, weight, blood pressure, waist circumference, blood glucose, serum lipids

B. Positive and negative symptom rating scale, weight, antipsychotic serum concentration, waist circumference, blood glucose, serum lipids

C. Brief standardized clinical rating scales, weight, blood pressure, blood glucose, serum lipids, and electrocardiogram

D. Positive and negative symptom rating scale, weight, blood pressure, blood glucose, serum lipids, electrocardiogram

Chapter 51 - Major Depressive Disorder

1) Based on currently available evidence, which of the following best describes the approach that should be used when considering the addition of an SSRI to a medication regimen that includes a chronic NSAID?

A. Combination must be avoided and is contraindicated.

B. Use this combination with caution and monitor efficacy.

C. The combination is associated with enhanced antidepressant efficacy.

D. None of the above.

2) What is the risk of relapse among pregnant women with depression who stop their antidepressant medication, compared with those who continue pharmacotherapy?

A. No increase

B. Twofold increase

C. Fivefold increase

D 10-Fold increase

3) Each of the following is associated with multiple serotonergic effects, including antagonism of postsynaptic 5-HT_2 receptors, *except*:

A. Trazodone

B. Vilazodone

C. Nefazodone

D. Mirtazapine

4) According to data from the Agency for Healthcare Research and Quality (AHRQ), which of the following antidepressants may be associated with lower discontinuation rates secondary to poor efficacy, but higher discontinuation due to intolerability, as compared with the SSRIs?

A. Bupropion

B. Sertraline

C. Venlafaxine

D. Vilazodone

5) Disruptions to some extent in the following systems have been implicated in the pathophysiology of depression:

A. Brain-derived neurotrophic factor

B. Monoamine neurotransmitters

C. Hypothalamic pituitary adrenal axis

D. All of the above

6) In a patient successfully completing the *continuation* phase, what is the minimum recommended duration of treatment to prevent recurrence?

A. 4 months

B. 9 months

C. 12 months

D. 36 months

7) If you were going to recommend a *specific* literature-based exercise parameter to a patient for augmenting SSRI efficacy, which of the following instructions would be correct?

A. Focus on overall calories "burned" per week from exercise.

B. Focus on reaching your peak exercise intensity each session.

C. Focus on activities with little to no impact, such as swimming.

D. None of the above.

8) In a patient experiencing a major depressive episode, which of the following steps should be confirmed prior to labeling them a medication nonresponder?

A. Adequate dose for adequate duration

B. Adherence to prescribed regimen

C. Proper monitoring of response

D. All of the above

9) In order to meet criteria for a major depressive episode, the patient must exhibit the following symptoms:

A. Depressed mood most of the day every day for at least 1 week

B. At least five of the symptoms listed in the *DSM-IV-TR*

C. Grandiosity

D. Anxiety

10) Which of the following scenarios is considered a pharmacokinetic drug interaction, *not* a pharmacodynamic drug interaction?

A. Fluoxetine inhibits the metabolism of metoprolol via CYP2D6.

B. Fluoxetine taken with linezolid leading to serotonin syndrome.

C. All of the above.

D. None of the above.

11) If serotonin syndrome is suspected in a patient being treated with antidepressants, which of the following is the most likely symptom that should be carefully monitored?

A. Clonus

B. Asterixis

C. Priapism

D. None of the above

12) When augmenting antidepressant response with omega-3 fatty acids, all of the following are likely effective choices *except*:

A. Docosahexaenoic acid (DHA) monotherapy

B. Eicosapentaenoic acid (EPA) monotherapy

C. EPA/DHA combination product

D. None of the above

13) The antidepressant of choice for an elderly patient with narrow-angle glaucoma and major depressive disorder is:

A. Trazodone

B. Mirtazapine

C. Sertraline

D. Amitriptyline

14) Which of the following antidepressants is associated with dose-related cardiovascular adverse effects that require adherence to maximum recommended dosing, unless high doses are deemed appropriate despite risks?

A. Mirtazapine

B. Sertraline

C. Venlafaxine

D. Citalopram

15) Although associations between antidepressant use and suicidality risk are complex, recent evidence suggests that which of the following antidepressants may

be associated with a *protective* effect from suicidality among adults and older patients?

A. Venlafaxine
B. Mirtazapine
C. Paroxetine
D. Sertraline

Chapter 52 - Bipolar Disorder

1) The preferred treatment option for a 20-year-old patient with bipolar disorder who has severe liver disease is:

A. Valproic acid
B. Lithium
C. Carbamazepine
D. Oxcarbazepine

2) During the lag time for onset of action of lithium, an appropriate adjunctive medication for acute mania might include a medication from which of the following classes?

A. Antihistamines
B. Benzodiazepines
C. β-Blockers
D. Antidepressants

3) Lamotrigine should be used for which phase of bipolar disorder?

A. Acute mania
B. Acute depression
C. Maintenance
D. Rapid cycling

4) If lamotrigine is initiated in a patient receiving valproic acid (VPA), the starting dose of lamotrigine should be:

A. Lower than if started in a patient not receiving VPA.
B. Higher than if started in a patient not receiving VPA.
C. The same as in a patient not receiving VPA.
D. Lamotrigine is contraindicated in patients receiving VPA.

5) Which of the following laboratory tests is needed prior to initiating therapy with valproic acid?

A. Potassium level

B. Liver function test

C. Thyroid function test

D. Magnesium level

6) Which adverse effect is more frequently associated with oxcarbazepine than with carbamazepine?

A. Ataxia

B. Nausea and vomiting

C. Stevens-Johnson syndrome

D. Hyponatremia

7) All of the following are symptoms of acute mania *except*:

A. Grandiosity

B. Racing thoughts

C. Decreased appetite

D. Pressured speech

8) Antidepressants should be used when treating a patient with bipolar disorder who is currently:

A. Depressed, with a history of treatment-resistant depressions

B. Not depressed, but has a history of severe depression before each manic episode

C. Hypomanic, but has a history of severe depression

D. Manic, but has a history of severe depression after a manic episode

9) A diagnosis of bipolar disorder comes only after a patient has a:

A. Manic episode

B. Hypomanic episode

C. Depressed episode

D. A and B

10) Antipsychotics could be used in a patient displaying which of the following symptoms?

A. Mania with psychotic features

B. Mania without psychotic features

C. Depression with psychotic features

D. All of the above

11) A first-line treatment option in a patient with current manic episode of bipolar disorder is:

A. Lithium

B. Carbamazepine

C. Lamotrigine

D. Oxcarbazepine

12) Treatment of choice for rapid cycling is:

A. Lamotrigine

B. Carbamazepine

C. Haloperidol

D. Valproic acid

13) Which medication has an FDA indication for the treatment of bipolar depression?

A. Olanzapine

B. Quetiapine

C. Risperidone

D. Ziprasidone

14) Which medication has an FDA indication for maintenance therapy in bipolar disorder?

A. Olanzapine

B. Quetiapine

C. Risperidone

D. Ziprasidone

15) Which of the following laboratory tests is needed prior to initiating lithium therapy?

A. Potassium level

B. Platelet count

C. Thyroid function test

D. Magnesium level

Chapter 53 - Anxiety Disorders I: Generalized Anxiety, Panic, and Social Anxiety Disorders

1) A 19-year-old patient presents with panic attacks occurring two to three times weekly. Symptoms that occur during the attacks include shortness of breath, tachycardia, paresthesias, dizziness, and palpitations. On further questioning, the patient states that the attacks occur during times of fear of talking with strangers, writing a check in front of someone, or in any situation that the patient feels scrutinized by others or likelihood of humiliation. Based on clinical presentation, the panic attacks this patient is experiencing are most likely associated with which of the following anxiety disorders?

A. Panic disorder
B. Social anxiety disorder
C. Generalized anxiety disorder
D. Obsessive-compulsive disorder

2) Which of the following brain structures is located in the temporal lobe and plays a critical role in the assessment and learned response to fear?

A. Amygdala
B. Hippocampus
C. Hypothalamus
D. Locus ceruleus

3) A 48-year-old patient with hypertension, rheumatoid arthritis, and gastroesophageal reflux presents with symptoms of anxiety including palpitations, diaphoresis, and jitteriness. The patient's medication regimen includes prednisone, chlorthalidone, enalapril, and ranitidine. Which medication is most likely to contribute to symptoms of anxiety?

A. Lisinopril
B. Ranitidine
C. Prednisone
D. Chlorthalidone

4) Patients with panic disorder should be started at one fourth to one half of the dose of sertraline used to treat depression in order to decrease the risk for which of the following?

A. Weight gain
B. Sedative effects
C. Increased anxiety
D. Sexual dysfunction

5) A 23-year-old construction worker presents for pharmacotherapy for a new diagnosis of panic disorder. The patient has a history of alcohol abuse and asthma.

Based on evidence-based guidelines, which of the following is most appropriate regimen to recommend?

A. Buspirone 5 mg orally three times daily

B. Sertraline 25 mg orally daily in the morning

C. Alprazolam extended-release 2 mg orally at bedtime

D. Atenolol 25 mg orally an hour before anticipated anxiety

6) A 26-year-old patient with panic disorder who responds to acute treatment with escitalopram should continue on it for at *least* _____ month(s).

A. 1

B. 3

C. 6

D. 12

7) A 35-year-old patient with panic disorder has been well maintained on sertraline 150 mg daily and clonazepam 1 mg twice daily for 2 years. As a result of a recent hospitalization, several medications have been added to the regimen, and the patient is experiencing significant breakthrough anxiety. Which of the following new medications is most likely to interact with the clonazepam and result in increased anxiety?

A. Pantoprazole

B. Carbamazepine

C. Lithium carbonate

D. Warfarin sodium

8) A patient with panic disorder has been treated successfully with paroxetine 60 mg daily for 6 months. The patient inquires about discontinuation of therapy. Which of the following is the most appropriate plan for discontinuation of paroxetine?

A. Continue therapy for 6 more months, and then attempt to taper the paroxetine over 4 to 6 months.

B. Add clonazepam to the regimen and attempt to taper paroxetine over 2 months.

C. Continue therapy for 3 more months, and then attempt to taper paroxetine by decreasing the dose 25% weekly.

D. Convert paroxetine to fluoxetine, and then taper the fluoxetine after 6 months of therapy.

9) A patient has been treated with clonazepam 1 mg three times daily for panic disorder for 18 months. On discontinuation of therapy, the clonazepam should be tapered over how many weeks to reduce the chance for relapse?

A. 2

B. 4

C. 6

D. 12

10) A patient with social anxiety disorder has failed therapy with sertraline and paroxetine. Based on evidence-based treatment guidelines, which of the following medications would be preferred for the next trial of pharmacotherapy?

A. Mirtazapine

B. Bupropion

C. Pregabalin

D. Venlafaxine

11) A 39-year-old patient is being treated for treatment-resistant GAD with escitalopram 30 mg daily and quetiapine XR 100 mg at bedtime. Which of the following are the most appropriate monitoring parameters for this patient?

A. Liebowitz Social Anxiety Scale, weight, complete blood count

B. Hamilton Anxiety Scale, body mass index, fasting blood sugar

C. Fall risk, weight, complete blood count, basic metabolic panel

D. Suicidality risk, ophthalmic examination every 6 months, blood pressure

12) You are consulted on the case of a 75-year-old patient with newly diagnosed generalized anxiety disorder who has severe anxiety requiring pharmacotherapy with a quick onset of effect. You are asked to select the most appropriate benzodiazepine and educate the patient that this agent is safer in the elderly because of its route of metabolism. Which of the following benzodiazepines do you recommend and provide education about to the patient?

A. Alprazolam

B. Oxazepam

C. Clorazepate

D. Chlordiazepoxide

13) The long-term goal of therapy in the treatment of generalized anxiety, panic, and social anxiety disorders is which of the following?

A. Few to minimal core symptoms

B. Partial response after 12 weeks

C. Ability to taper adjunctive agent

D. Complete remission of symptoms

14) A 32-year-old patient presents with significant social anxiety disorder. The patient is not interested in pharmacotherapy, but is agreeable to nonpharmacologic

methods of treatment. If nonpharmacologic methods are prescribed, which of the following would be most appropriate?

A. Sympathectomy

B. Psychological debriefing

C. Cognitive behavioral therapy

D. Transcranial neurostimulation

15) A 27-year-old patient with a history of substance abuse is being treated for panic disorder. Which of the following medications is associated with the risk of dependence with chronic and prolonged use?

A. Buspirone

B. Clonazepam

C. Venlafaxine

D. Gabapentin

Chapter 54 - Anxiety Disorders II: Posttraumatic Stress Disorder and Obsessive-Compulsive Disorder

1) Which of the following signs and symptoms would be the most consistent with a patient with a diagnosis of posttraumatic stress disorder?

A. Depression, exaggerated startle response, talking openly about the trauma, insomnia

B. Avoiding thoughts about the trauma, spending sprees, anger outbursts, flashbacks of the trauma

C. Feeling estranged from others, recurrent nightmares, decreased concentration, anhedonia

D. Feeling like a traumatic event was recurring, visual hallucinations, intrusive memories of the event

2) In order to meet the diagnostic criteria for posttraumatic stress disorder, a patient has to have symptoms for longer than which of the following durations?

A. 1 day

B. 1 week

C. 1 month

D. 1 year

3) A 23-year-old teacher was physically assaulted by her ex-boyfriend in the parking lot of the school where she worked 4 months ago. She was hospitalized after this event for a week with internal injuries and broken ribs. She presents to the outpatient clinic with complaints of difficulty falling and staying asleep,

irritability, feeling numb, and being easily startled. She says that she has intrusive memories of the event, has not returned to work, and avoids talking with her family, friends, and coworkers about the event. You note that on examination she has a restricted range of affect and appears nervous. She refused to talk about the details of the event. She is diagnosed with posttraumatic stress disorder. What is the most appropriate first-line pharmacologic management of this patient?

A. Sertraline 25 mg every day

B. Risperidone 1 mg twice daily

C. Mirtazapine 15 mg at bedtime

D. Alprazolam 1 mg three times a day

4) Which of the following agents has the most evidence to support use as an augmenting agent in patients with posttraumatic stress disorder who are on antidepressant therapy and continue to complain of nightmares?

A. Prazosin

B. Zolpidem

C. Lorazepam

D. Olanzapine

5) A 30-year-old Army veteran from the war in Afghanistan was diagnosed with posttraumatic stress disorder 4 months ago. The patient has had a reduction in symptoms but continues to complain about flashbacks of members of his unit being blown up after stepping on improvised explosive devices, and of an incident that involved killing innocent bystanders. The patient has no hope for the future. The patient is currently on fluoxetine 20 mg daily and has been on this dose for a month. What is the best recommendation at this time?

A. Add risperidone 1 mg daily.

B. Add phenelzine 15 mg at bedtime.

C. Increase fluoxetine to 30 mg daily.

D. Switch to venlafaxine extended-release 37.5 mg daily.

6) Which of the following nonpharmacologic treatments has been found to be the most effective in the management of posttraumatic stress disorder?

A. Psychoeducation

B. Deep brain stimulation

C. Transcranial magnetic stimulation

D. Trauma-focused cognitive behavioral therapy

7) A 41-year-old patient with posttraumatic stress disorder is seen in the outpatient clinic for a followup appointment. The patient has been on paroxetine 40 mg daily for 2 months. The patient reports reduction in symptoms by over 50% and

returning to work parttime. The patient asks how long medication should be continued. Which of the following minimum durations of time should you discuss with the patient?

A. 3 months

B. 6 months

C. 9 months

D. 12 months

8) Recently investigators have evaluated the effect of riluzole as a treatment for obsessive-compulsive disorder in children. Which neurotransmitter theory of obsessive-compulsive disorder would this line of investigation support?

A. Glutamate

B. Serotonin

C. Acetylcholine

D. Norepinephrine

9) Which of the following is an example of an obsession that a patient with obsessive-compulsive disorder may complain about?

A. Repeated hand washing

B. Repeating words silently

C. Counting pencils and pens

D. Repeated thoughts of doubt

10) Based on the American Psychiatric Association's practice guidelines for obsessive-compulsive disorder, which of the following agents is a recommended first-line medication in the treatment for a patient newly diagnosed with this illness?

A. Sertraline

B. Venlafaxine

C. Risperidone

D. Clomipramine

11) A physician would like to initiate fluoxetine in a 34-year-old patient with a 12-year history of obsessive-compulsive disorder. The patient takes a multivitamin daily. Which of the following daily starting doses would you recommend?

A. 10 mg

B. 20 mg

C. 30 mg

D. 40 mg

12) A 10-year-old has been diagnosed with obsessive-compulsive disorder. The patient's obsessions involve the need for symmetry. The patient's mother reports that the patient spends 2 to 3 hours daily lining up toys, books, cereal boxes, and sticks or rocks outside. This is beginning to interfere with the patient's ability to complete schoolwork and homework assignments. The patient failed therapy with two previous selective serotonin reuptake inhibitors, and the family's insurance will not cover psychotherapy. The patient is currently not taking any medications and weighs 40 kg (88 lb). Which of the following would be the most appropriate recommendation?

A. Deep brain stimulation.

B. Psychodynamic therapy.

C. Start clomipramine 25 mg at bedtime.

D. Initiate aripiprazole 1 mg twice daily.

13) A patient with obsessive-compulsive disorder tells you that the patient's physician has recommended cognitive behavioral therapy. Which of the following is the most accurate information about this nonpharmacologic treatment modality that you could explain to the patient about use in this disorder?

A. Patient acceptance is high.

B. It requires 13 to 20 sessions.

C. It should be combined with antipsychotics.

D. It is more effective than pharmacotherapy.

14) A patient with newly diagnosed obsessive-compulsive disorder has been on escitalopram 20 mg daily for the past 6 months with a 50% reduction of symptoms based on the Yale-Brown Obsessive-Compulsive Disorder Scale. The patient inquires as to how much longer it is recommended to stay on this medication. What is the most appropriate response?

A. 5 to 7 more days

B. 3 to 4 more weeks

C. 6 to 12 more months

D. 4 to 5 more years

15) When monitoring a 53-year-old patient with obsessive-compulsive disorder and hypertension on lisinopril 20 mg daily and hydrochlorothiazide 25 mg daily, which of the following baseline monitoring parameters should be obtained and monitored if clomipramine 50 mg at bedtime is prescribed?

A. Electrocardiogram

B. Liver function tests

C. Thyroid function tests

D. Complete blood count

Chapter 55 - Sleep Disorders

1) SB is a 28-year-old female who complains that she has had difficulty sleeping over the last several weeks and that it is beginning to interfere with her work. She states that she had been working long hours and feeling stressed, so she has been doing aerobics before bed around 10 pm. What would you recommend initially to SB?

A. Trazodone

B. Flurazepam

C. Cognitive therapy

D. Zolpidem

E. Sleep hygiene

2) Mrs D, a 35-year-old female, complains of difficulty with sleep onset for more than 6 weeks. She has appropriately tried sleep hygiene therapy, but that has not worked. The plan is to initiate medication therapy. If the patient has no contraindications, and no medical causes for these sleep difficulties, which of the following therapies would you start with?

A. Amitriptyline

B. Fluoxetine

C. Doxepin

D. Citalopram

E. Zolpidem

3) A 42-year-old female who recently lost her husband tells you that she is not sleeping at night. After questioning her further, you determine that she does not have depression or substance abuse. What would you recommend?

A. Educate her concerning sleep hygiene.

B. Recommend a trial of a short-acting BZDRA.

C. Recommend a trial of fluoxetine.

D. Recommend a trial of amitriptyline.

4) A 27-year-old female has trouble with waking up in the middle of the night. Which of the following is *least* likely to be effective for her if taken at bedtime?

A. Zaleplon

B. Temazepam

C. Zolpidem CR

D. Estazolam

5) What is the best way to avoid tolerance and dependence in this patient?

A. Use high-dose BZDRA therapy for as long as possible.

B. Use high-dose BZDRA therapy for as short as possible.

C. Use low-dose BZDRA therapy for as long as possible.

D. Use low-dose BZDRA therapy for as short as possible.

6) A 28-year-old female has a chief complaint of insomnia occurring for the last 5 months. She just graduated from pharmacy school, and she spends the evening worrying if she has made a mistake during her busy days at work. All other psychiatric and medical conditions have been ruled out. How would you approach treating this patient?

A. Recommend a short-term trial of lorazepam.

B. Recommend a short-term trial of clonazepam.

C. Recommend an approach that would include education concerning good sleep hygiene, supportive therapy, and trazodone as an adjunct if needed.

D. Recommend cognitive therapy alone.

7) A 34-year-old male begins working overnight shifts. He finds that he has difficulty sleeping during daytime hours. What is the best recommendation you can provide him to help with his complaint?

A. Drink alcohol after his work shift to help him fall asleep.

B. Take melatonin, ramelteon, or a short-acting BZDRA at bedtime.

C. Take an SSRI after work to help him fall asleep.

D. Take modafinil prior to going to work to help him stay awake overnight.

8) A 54-year-old male patient has been having difficulty maintaining sleep. He sleeps fine until around 1 am when he wakes up. He would like to sleep until 6:30 am. Which of the following would be the most appropriate?

A. Diazepam 5 mg orally at bedtime

B. Eszopiclone 3 mg orally when he awakens at 1 AM

C. Zolpidem 3.5 mg SL when he awakens at 1 AM

D. Flurazepam 30 mg orally at bedtime

9) A 46-year-old male with chronic obstructive pulmonary disease has difficulty falling asleep. Which pharmacologic agent would you recommend in this patient?

A. Temazepam

B. Amitriptyline

C. Ramelteon

D. Levothyroxine

10) DB is a 58-year-old male with obstructive sleep apnea and daytime sleepiness. What is the best therapy for him?

A. Tracheostomy

B. Modafinil

C. Uvulopalatopharyngoplasty

D. Oral appliances

E. Continuous positive airway pressure

11) Sleep apnea can lead to all of the following sequelae *except*?

A. Depression

B. Stroke

C. Hypertension

D. REM parasomnias

12) Which of the following is the standard of treatment for daytime sleepiness associated with narcolepsy?

A. Methamphetamine

B. Modafinil

C. Zolpidem

D. Imipramine

13) Which of the following is the most effective treatment for cataplexy associated with narcolepsy?

A. Methamphetamine

B. Medroxyprogesterone acetate

C. Modafinil

D. Sodium oxybate

14) It is believed that restless legs syndrome results from:

A. Hypocretin-orexin neuron dysfunction in the hypothalamus

B. Repetitive airway closure during sleep

C. Iron-handling abnormalities in the substantia nigra

D. Loss of serotonin receptors in the dorsal raphe nucleus

15) Which of the following would be the correct recommendation for a patient with obsessive-compulsive disorder and restless legs syndrome who has difficulty falling asleep due to his RLS?

A. Zolpidem

B. Doxepin

C. Ropinirole

D. Pramipexole

Chapter 56 - Disorders Associated with Intellectual Disabilities

1) Which of the following deficits associated with intellectual disabilities may mask symptoms of psychiatric disorders?

A. Community integration

B. Diagnostic overshadowing

C. Specialized testing instruments

D. Expressive language skills

2) Which of the following is most frequently identified as an age risk factor for Down syndrome?

A. Maternal grandmother age

B. Paternal age

C. Maternal age

D. Maternal and paternal age

3) Martha Jones, a 39-year-old woman diagnosed with Down syndrome and mild to moderate intellectual impairment, presents to a psychiatric clinic. Her family reports over the past 6 months she is increasingly irritable, more socially withdrawn, and unable to complete previously simple tasks. A provisional diagnosis of Alzheimer's disease is made. Evidence supports a trial of:

A. Tranylcypromine

B. Phenelzine

C. Memantine

D. Donepezil

4) Marsha, now 6 years old, was progressing normally until approximately 3 years ago when pronounced developmental regression was noted. This progressed to profound intellectual impairment with significant skill and neurologic changes. You recommend monitoring for an increase in:

A. Ataxia

B. Bruxism

C. Scoliosis

D. Seizures

5) A colleague requests a consult for a 16-year-old Down syndrome patient recently diagnosed with depression. You state that:

A. The current evidence suggests that mood disorders are uncommon.

B. Pharmacotherapy options are evidence-based for this population.

C. Thyroid dysfunction should be ruled out as a potential causal factor.

D. Cognitively based therapy options are first-line for this population.

6) A child with a confirmed diagnosis of autism is in your pediatric clinic. What is the most common neurologic disorder associated with children with autism?

A. Seizure disorder

B. Tourette's disorder

C. Rett syndrome

D. Pervasive developmental disorder

7) The mother of a child with autism exhibiting extreme aggressive behaviors is reluctant to consent to a trial of risperidone for these behaviors. Nonpharmacologic strategies have already been implemented. You discuss this potential medication therapy with the mother and explain:

A. First-generation antipsychotic agents are less expensive and equally effective as an atypical agent.

B. Secretin may be a better therapeutic option for her child.

C. She should check the Internet for more natural treatment strategies.

D. Risperidone has the strongest evidence-based results in treating maladaptive behaviors of autism.

8) Early diagnosis and accompanying appropriate treatment is important for children with autism in order to:

A. Promote maximal learning, improve behaviors/communications, and engage in recreations/social/occupational activities

B. Start pharmacotherapy as quickly as possible

C. Secure institutional placement

D. Allow the parents to join a support group

9) A mother brings her 18-month-old daughter to your pediatric clinic. She mentions the child does not enjoy playing with her siblings, has no interest in her parents, and has not begun to speak single words. What guidance should be given to this mother?

A. Discuss the possible differential diagnoses and refer the family to a developmental evaluation center for a multidisciplinary evaluation and workup.

B. Minimize her concerns due to the young age of the child.

C. Refer the family to an autism support group.

D. Discuss neuroimaging to rule out brain pathology.

10) As part of a medical workup for a child with suspected autism, which of the following is *not* commonly performed?

A. Detailed medical and developmental history

B. Test for lead or heavy metals, especially if pica present

C. Genetic testing

D. Electrocardiography

11) What clinical condition with personality and behavior changes may present in adults with Down syndrome?

A. Hypothyroidism

B. Obsessive-compulsive disorder

C. Alzheimer's disease

D. Megakaryoblastic leukemia

12) What is the most common seizure presentation in Rett syndrome?

A. Partial with secondary generalization

B. Generalized tonic–clonic

C. Myoclonic or Jacksonian

D. Absence with secondary generalization

13) A functional analysis of Rett syndrome–associated stereotypies found they:

A. Are maintained by negative environmental reinforcement

B. Are indicators of an autism comorbidity

C. Are mediated by autonomic reinforcement

D. Respond to atypical antipsychotic agents

14) Down syndrome immunologic abnormalities may necessitate medication regimen adjustments associated with the treatment of:

A. Leukemia

B. Scoliosis

C. Seizures

D. Hypothyroidism

15) What is the best treatment for scoliosis secondary to Rett syndrome?

A. High-calcium and high–vitamin D diets

B. Frequent feedings to ensure adequate caloric intake

C. Prostheses or surgery to correct the curvature

D. Relaxation therapy and massage to release muscle tension

Chapter 57 - Diabetes Mellitus

1) Type 2 diabetes mellitus is characterized by:

A. Insulin resistance, obesity, and insulin deficiency

B. A majority of patients with TCF7L2 heterozygous allele

C. A decline in α-cell function and/or mass over time

D. High postprandial GLP-1 levels

E. A higher risk of celiac disease

2) Which of the following properly performed laboratory values would be diagnostic for diabetes mellitus?

A. A fasting plasma glucose of 127 mg/dL

B. A random plasma glucose of 192 mg/dL after a meal, but the patient states they feel fine, sleep well, and have gained 10 lb over the last 6 months

C. A plasma glucose of 141 mg/dL at 2 hours on a 75-g oral glucose tolerance test (OGTT)

D. A hemoglobin A_{1c} value of 6.4%

3) An adolescent is newly diagnosed with diabetes mellitus. The father also has diabetes. He was diagnosed when he was 27 years old after an employment screening and takes a sulfonylurea. What is the etiology of their diabetes mellitus?

A. A TCF7L2 allele issue is likely

B. Type 2 DM or mature-onset diabetes in the young (MODY)

C. DRQ2 or DRQ4 leading to type 1 DM

D. Latent autoimmune diabetes in adults (LADA)

4) How is GLP-1 affected by type 1 DM?

A. Reduced postprandial levels.

B. Resistance to its action at target tissues.

C. Absolute deficiency.

D. There is no change.

5) A patient with poorly controlled type 2 diabetes mellitus with extreme insulin resistance is currently on a total daily dose of 300 units of U-100 insulin. They are being transitioned to an equivalent total daily dose of U-500 regular insulin divided

into equal doses injected subcutaneously before each meal three times a day. Choose the*correctly* written prescription(s).

A. U-500 regular insulin: inject 100 units (0.2 mL) subcutaneously three times daily before meals.

B. U-500 regular insulin: inject 100 units (20 units as measured by the unit markings of a U-100 syringe) subcutaneously three times daily before meals.

C. U-500 regular insulin: inject 20 units subcutaneously three times daily before meals.

D. Both A and B are correct.

6) All of the following are effects of glucagon-like peptide 1 (GLP-1) agonists *except*:

A. Enhance insulin secretion in a glucose-dependent manner

B. Suppress inappropriately high postprandial glucagon secretion

C. Promote weight gain

D. Cause nausea and other adverse GI side effects

E. Increase satiety and decrease gastric emptying

7) Which of the following dipeptidyl peptidase 4 (DPP-4) inhibitors *does not* require adjustment of dose in renal insufficiency?

A. Linagliptin

B. Sitagliptin

C. Saxagliptin

D. Alogliptin

8) A 65-kg patient with type 1 diabetes mellitus is taking insulin glargine 40 units at bedtime and scheduled dose 8 units of insulin lispro three times a day before each meal plus additional lispro for hyperglycemia. The patient has been consistently experiencing a marked increase in blood glucoses (BGs) overnight. Despite usually having bedtime BGs in the 120 to 150 mg/dL range, the patient consistently awakens with fasting BGs between 300 and 400 mg/dL. The *next best* step is to:

A. Increase the dose of insulin glargine to 45 units injected subcutaneously at bedtime.

B. Keep the dose of insulin glargine the same, but change the timing of the injection from bedtime to morning.

C. Ask the patient about symptoms of nocturnal hypoglycemia and request they test some overnight BGs at 2 or 3 AM.

D. Advise the patient to begin 4 units of insulin lispro with their bedtime snack.

E. Tell the patient to stop consuming their bedtime snack altogether.

9) An obese patient with type 2 diabetes mellitus is taking 86 units of insulin detemir per day along with three scheduled doses of 28 units of insulin aspart before each meal (total daily dose of insulin = 170 units). You would like to advise them how to treat hyperglycemia by using additional insulin aspart. Please determine their estimated correction factor.

A. 1 extra unit of insulin aspart will lower blood glucose by 8 mg/dL.

B. 1 extra unit of insulin aspart will lower blood glucose by 10 mg/dL.

C. 1 extra unit of insulin aspart will lower blood glucose by 15 mg/dL.

D. 1 extra unit of insulin aspart will lower blood glucose by 20 mg/dL.

E. 1 extra unit of insulin aspart will lower blood glucose by 50 mg/dL.

10) Please choose the *correct* statement.

A. New-onset type 1 diabetes can present at any age.

B. Type 2 diabetes is most often due to autoimmune destruction of pancreatic β cells.

C. The prevalence of type 2 diabetes decreases with age.

D. Type 2 diabetes accounts for about 80% of cases of diabetes.

E. Latent autoimmune diabetes of adulthood (LADA) usually responds to oral agents and does not require insulin therapy.

11) All of the following are currently available and marketed insulin preparations *except*:

A. Detemir

B. Glulisine

C. Ultralente

D. NPH

12) What is the preferred treatment option for an 18-year-old man with type 1 DM?

A. Metformin

B. Basal and bolus insulin regimen

C. Bedtime insulin NPH

D. Exenatide

13) Which of the following is true regarding a 35-year-old woman with type 1 DM who has a concurrent self-limiting illness?

A. Insulin sensitivity increases necessitating a decrease in insulin dose.

B. Frequent blood glucose monitoring is not necessary in this situation.

C. Sport drinks are preferred given their electrolyte and sugar content.

D. Glucose control is more challenging in type 1 DM patients compared with that in type 2 DM patients.

14) Which of the following is a typical distinction between diabetic ketoacidosis (DKA) and hyperosmolar hyperglycemic state (HHS)?

A. HHS patients have higher plasma glucose concentrations than those with DKA.

B. HHS patients have lower effective serum osmolality than those with DKA.

C. Patients with HHS always present with ketonuria.

D. HHS evolves much quicker than DKA.

15) Which of the following initial therapy options is *best* for a 60-year-old obese patient with type 2 DM (HbA_{1c} = 10%), hypertension, elevated triglycerides, and decreased HDL?

A. Basal and bolus insulin regimen

B. Metformin monotherapy

C. Sitagliptin monotherapy

D. Metformin plus another oral agent

16) Which of the following initial therapy options is best for an 84-year-old normal-weight patient with type 2 DM (HbA_{1c} = 7.8%)? She has a history of four-vessel bypass 8 years ago, hypertension, dyslipidemia, and Parkinson's disease, and has fallen twice in the last 6 months.

A. Lifestyle changes only.

B. Metformin monotherapy.

C. Linagliptin monotherapy.

D. All are initial therapy options.

Chapter 58 - Thyroid Disorders

1) Thionamides (methimazole and propylthiouracil) act by doing which of the following?

A. Interfering with thyroglobulin resorption into thyroid follicles

B. Inhibiting iodine incorporation into tyrosine residues

C. Inhibiting the sodium iodide transporter

D. Increasing thyroglobulin stores

E. Causing destruction of thyroid follicular cells

2) Which of the following is true regarding the medical treatment of hyperthyroidism?

A. Methimazole has a shorter half-life than propylthiouracil.

B. A common side effect of these agents is renal impairment.

C. Both propylthiouracil and methimazole are concentrated within the thyroid gland.

D. It takes 4 to 8 months of thionamide therapy before thyroid hormone levels begin to decrease.

E. Methimazole is strongly bound to plasma proteins.

3) The following statements about thionamides (propylthiouracil [PTU] and methimazole) are correct *except*:

A. Methimazole can be administered once daily.

B. Methimazole and PTU reduce the stores of thyroglobulin within the thyroid gland.

C. PTU use is contraindicated during the first trimester of pregnancy.

D. Methimazole is considerably more potent than PTU.

E. The side effects of PTU and methimazole can include GI symptoms.

4) The following statements about thionamides (propylthiouracil [PTU] and methimazole) are correct *except*:

A. Mild leukopenia can be seen with PTU, methimazole, and Graves' disease itself.

B. Methimazole and PTU serve as substrates for the iodinating intermediate of thyroid peroxidase.

C. PTU may increase the efficacy of later treatment with radioactive iodine.

D. Methimazole is generally considered first-line therapy for hyperthyroidism.

E. The side effects of PTU and methimazole can include development of a rash.

5) Which of the following statements about radioactive iodine therapy of hyperthyroidism is *incorrect*?

A. Men are less likely to become hypothyroid after radioactive iodine therapy.

B. Treatment doses of radioiodine may be based on a fixed dose approach or a calculated dose approach, using calculations based on thyroid gland size and iodine uptake and turnover.

C. Hypothyroidism generally occurs approximately 6 days after radioiodine administration.

D. Radioactive iodine therapy is contraindicated during pregnancy and lactation.

E. If a first dose of radioactive iodine is ineffective, a second radioactive iodine dose may be given.

6) Which of the following statements about thyroid hormones is correct?

A. T_4 has a half-life of about a day.

B. T_3 is not usually chosen for treatment of hypothyroidism because it has to be given subcutaneously.

C. T_4 can be thought of as a prohormone as it is converted into the active hormone T_3.

D. The thyroid gland produces mostly T_3 and a small amount of T_4.

E. TSH concentrations are generally not helpful when titrating a hypothyroid patient's dose of thyroid hormone.

7) Which of the following is not a potential cause of hypothyroidism?

A. Hashimoto's thyroiditis

B. Radioactive iodine therapy

C. Pituitary failure

D. β-Blocker therapy

E. Overtreatment with thionamides

8) Which of the following is not true about levothyroxine (synthetic thyroid hormone)?

A. It has a half-life of 7 days, which allows it to be administered once daily.

B. It is active when taken orally.

C. It produces stable serum levels of both T_4 and T_3.

D. Its side effects can include hepatitis and agranulocytosis.

E. New steady-state levels of T4 are reached about 6 weeks after a levothyroxine dosage change.

9) Which of the following is *not* true about liothyronine (synthetic T_3)?

A. It has a half-life of about 1 day, which means it has to be administered several times a day to maintain steady levels of T_3.

B. It has been used in combination with levothyroxine therapy.

C. It produces stable serum levels of both T_4 and T_3.

D. The side effects can include palpitations and insomnia.

E. It is not the treatment of choice for hypothyroidism.

10) Which of the following is not true regarding the use of recombinant hTSH (rhTSH)?

A. rhTSH can be used to prepare patients with thyroid cancer for diagnostic radioiodine whole-body scanning.

B. rhTSH cannot be used to stimulate thyroglobulin production as part of the diagnostic testing of patients with thyroid cancer.

C. Preparation with rhTSH avoids the morbidity of hypothyroidism.

D. rhTSH is given as an intramuscular injection.

E. Postthyroidectomy adjuvant radioiodine therapy can be delivered following rhTSH administration.

F. The sensitivity of diagnostic testing using radioiodine scanning and thyroglobulin measured after withdrawal from thyroid hormone and after rhTSH are similar.

Chapter 59 - Adrenal Gland Disorders

1) Aldosterone is synthesized in the:

A. Zona glomerulosa

B. Zona fasciculata

C. Zona reticularis

D. Medulla

2) Glucocorticoids regulate their own secretion by inhibiting the pituitary secretion of:

A. Corticotropin-releasing hormone

B. Adrenocorticotropic hormone

C. Melanocyte-stimulating hormone

D. Renin

3) The majority of cases of ACTH-dependent Cushing's syndrome are caused by:

A. Adrenal carcinoma

B. Primary pigmented nodular adrenal disease

C. Adrenal adenoma

D. Pituitary adenoma

4) In a 52-year-old male patient with cushingoid habitus, elevated serum and urinary cortisol, very high serum ACTH, no suppression of cortisol in response to low-dose DST, normal pituitary MRI, and no gradient on inferior petrosal sinus sampling (IPSS), the most likely diagnosis would be Cushing's syndrome secondary to:

A. Adrenal carcinoma

B. Ectopic ACTH production

C. Adrenal adenoma

D. Pituitary adenoma

5) In an adult female patient with classic Cushing's disease (caused by an adrenal adenoma), the preferred treatment is:

A. Mitotane 3 g three times a day

B. Cyproheptadine 4 mg twice a day

C. Resection of the adrenal tumor

D. Aminoglutethimide 250 mg three times a day

6) Which of the following drugs is *not* a steroidogenic inhibitor?

A. Cyproheptadine

B. Metyrapone

C. Ketoconazole

D. Aminoglutethimide

7) The majority of cases of primary aldosteronism are caused by:

A. Aldosterone-producing adenomas (APA)

B. Bilateral adrenal hyperplasia (BAH)

C. Unilateral adrenal hyperplasia

D. Familial hyperaldosteronism (FH) type 1

8) The combination of resistant hypertension, normokalemia, an aldosterone-to-renin ratio (ARR) of 23, plasma aldosterone concentration (PAC) of 19 mg/dL, a positive fludrocortisone suppression test, a normal CT, and no lateralization on AVS in a patient would be suggestive of:

A. Primary aldosteronism

B. Secondary aldosteronism

C. Licorice ingestion

D. Familial hyperaldosteronism (FH) type 2

9) The treatment of choice for bilateral adrenal hyperplasia-dependent aldosteronism is:

A. Spironolactone

B. Mifepristone

C. Angiotensin receptor blockers

D. Partial adrenalectomy

10) Which of the following signs or symptoms is seen in both primary and secondary adrenal insufficiency?

A. Hyperpigmentation

B. Normal aldosterone secretion

C. Normal response to the rapid ACTH stimulation test

D. Weakness

11) The agent of choice for the immediate treatment of acute adrenal insufficiency is:

A. D_5NS IV

B. Prednisone 5 mg by mouth

C. Hydrocortisone 100 mg IV

D. Fludrocortisone 0.1 mg by mouth

12) Treatment options for nonvirilizing congenital adrenal hyperplasia resulting from a deficiency in 21-hydroxylase may include the following, except:

A. Fludrocortisone

B. Dexamethasone

C. Hydrocortisone

D. Flutamide

13) All of the following drugs may be used for the treatment of hirsutism due to adrenal androgen excess except:

A. Dexamethasone

B. Eflornithine hydrochloride

C. Rosiglitazone

D. Finasteride

14) When tapering from long-term steroid therapy, what steroid dose indicates the need to possibly check HPA integrity?

A. Dexamethasone 6 mg/day

B. Prednisone 20 mg/day

C. Cortisone 200 mg/day

D. Hydrocortisone 40 mg/day

15) Patients who will be taking glucocorticoids long term should be warned about all of the following, except:

A. Weight gain and insomnia often occur when starting treatment.

B. Chronic use can lead to osteoporosis and glaucoma for which they must be monitored.

C. Patients should wear medical identification stating they are on chronic steroid therapy.

D. Patients may need to decrease dose during times of increased stress.

Chapter 60 - Pituitary Gland Disorders

1) Which of the following physiologic functions is *not* regulated by anterior pituitary hormones?

A. Growth

B. Thyroid function

C. Ovulation

D. Uterine contraction

2) Which of the following clinical characteristics is common to acromegalic patients?

A. Diarrhea

B. Increased shoe size

C. Weight loss

D. Alopecia

3) The preferred initial treatment option for a patient recently diagnosed with acromegaly is:

A. Bromocriptine

B. Lanreotide

C. Transsphenoidal surgery

D. Radiation therapy

4) KL is a 58-year-old man who was recently diagnosed with acromegaly. His past medical history is significant for type 2 diabetes and obesity. He is currently complaining of fatigue, joint pain, increased sweating, and headaches. Which of the following medical treatments is most appropriate for first-line treatment of KL's symptoms?

A. Bromocriptine

B. Cabergoline

C. Octreotide

D. Pegvisomant

5) Which of the following information is most important to provide to an acromegalic patient with a new prescription for lanreotide?

A. Concomitant therapy with ursodeoxycholic acid is needed to prevent gallstones

B. The most common adverse effect of lanreotide therapy is headache

C. A standard multiple vitamin is recommended during therapy

D. GI adverse effects should subside within 10 to 14 days of therapy

6) Which of the following clinical characteristics is common to patients with GH-deficient short stature?

A. Normal GH serum concentrations

B. Physical height <2 standard deviations below the population mean

C. Malnutrition

D. None of the above

7) Which of the following assessments need to be considered for the diagnosis of GH deficiency?

A. Bone age and growth velocity

B. GH response to provocative stimuli

C. Serum IGF-1 concentrations

D. All of the above

8) For which of the following conditions does recombinant human growth hormone therapy have a definitive role?

A. Chronic fatigue syndrome

B. GH-deficient short stature

C. Natural aging

D. None of the above

9) Which of the following parameters should be monitored in a patient receiving recombinant human growth hormone therapy?

A. Insulin-like growth factor 1

B. Blood glucose

C. Thyroid function

D. All of the above

10) Which of the following clinical characteristics is common in women with hyperprolactinemia?

A. Menstrual irregularities

B. Darkened skin

C. Dry mouth

D. Increased blood glucose

11) Which of the following classes of medications is most likely to cause drug-induced hyperprolactinemia?

A. β-blockers

B. Antidepressants

C. Antihistamines

D. Oral contraceptives

12) LJ is a 29-year-old woman who has been diagnosed with a prolactin-secreting adenoma that is 8 mm in diameter. She complains of amenorrhea for 1 year and galactorrhea from both breasts. Which of the following treatments is most appropriate for first-line treatment of LJ's symptoms?

A. Radiation therapy

B. Transsphenoidal surgery

C. Dopamine agonist therapy

D. Somatostatin analog therapy

13) Which of the following dopamine agonists would be the most appropriate choice for a patient trying to conceive?

A. Cabergoline

B. Ropinirole

C. Bromocriptine

D. Pramipexole

14) CM is a 30-year-old woman diagnosed with hyperprolactinemia. She recently began therapy with cabergoline. Which of the following medications should be considered as adjunctive therapy in CM?

A. Human growth hormone

B. Oral contraceptives

C. Multivitamins

D. Antacids

15) Which of the following treatments may be required for patients with panhypopituitarism?

A. Thyroid replacement

B. Recombinant human growth hormone

C. Glucocorticoids

D. All of the above

Chapter 61 - Pregnancy and Lactation: Therapeutic Considerations

1) Which of the following drug properties limits the ability of a drug to readily transfer across the placenta:

A. Low protein binding

B. Molecular weight below 500 Da

C. Hydrophilicity

D. Weak base

2) Which of the following types of data to evaluate drug safety during pregnancy is *least likely* to be available?

A. Case study or case series

B. Case–control study

C. Retrospective cohort study

D. Randomized, controlled trial

3) A 36-year-old woman with an active seizure disorder is contemplating pregnancy. Your recommendation to her is:

A. Switch antiepileptic treatment to a medication not known to cause neural tube defects

B. Take folic acid 4 mg daily during the first trimester

C. Take folic acid 400 mcg daily before conception followed by 4 mg daily during at least the first trimester

D. Increase dietary intake of folic acid

4) A 29-year-old woman who is at week 37 is complaining of constipation for the past 3 days despite increasing her dietary fiber and water intake. Which of the following recommendations is *not* appropriate?

A. Polyethylene glycol

B. Castor oil

C. Bisacodyl

D. Senna

E. None of the above is appropriate

5) Which of the following interventions decreases the risk of developing hypertension and preeclampsia during pregnancy?

A. Bed rest

B. Oral magnesium

C. Oral calcium supplementation

D. Oral lisinopril

E. IV magnesium sulfate infusion

6) For a woman at 34 weeks' gestation with an acute deep vein thrombosis, the treatment of choice is:

A. Dabigatran

B. Unfractionated heparin

C. Warfarin

D. Low-molecular-weight heparin

7) Which of the following is *not* an appropriate choice for treatment of acute cystitis in a 32-year-old woman at 27 weeks of gestation:

A. Doxycycline

B. Cephalexin

C. Sulfamethoxazole/trimethoprim

D. Nitrofurantoin

E. Amoxicillin/clavulanate

8) Which of the following management strategies is used to reduce the risk of congenital malformations in infants born to mothers with epilepsy?

A. Switch drug therapy to phenobarbital

B. Use low doses of several antiepileptic drugs to minimize dose of each received by the mother

C. Use only one antiepileptic drug, if possible

D. Drug withdrawal before conception to minimize drug exposure

9) An appropriate treatment for a pregnant woman who has an acute migraine headache not responsive to ibuprofen is:

A. Sumatriptan

B. Ergotamine

C. Caffeine

D. Rizatriptan

E. Propranolol

10) A 23-year-old woman had intermittent asthma treated with albuterol before pregnancy. Now at 13 weeks' gestation she is increasingly having symptoms and meets the definition for persistent asthma. The *most* appropriate treatment for this patient is:

A. Use only albuterol for the duration of the pregnancy

B. Continue albuterol and add cromolyn

C. Change from albuterol to budesonide (low dose)

D. Continue albuterol and add budesonide (low dose)

E. Continue albuterol and add oral prednisone

11) Which of the following statements about antenatal corticosteroids is *true*:

A. They are used to prevent preterm premature rupture of the membranes

B. They provide tocolysis in the setting of preterm labor

C. They should be re-administered when there is risk of delivering within 7 days but a previous course of therapy has been administered

D. They ripen the cervix in pregnant women beyond 40 weeks of gestation

E. They prevent postpartum hemorrhage

12) A 29-year-old woman of 16 weeks' gestation has a prior history of spontaneous preterm birth with her first child. Which of the following therapies should be initiated now to prevent the occurrence of a preterm birth in this singleton pregnancy?

A. Terbutaline

B. Nifedipine

C. Antenatal corticosteroids

D. IV magnesium

E. Hydroxyprogesterone

13) A woman diagnosed with gestational diabetes has failed first-line treatment with dietary and lifestyle modifications. Potential drug treatment options include all of the following *except*:

A. Insulin glargine

B. Intermediate-acting insulin (i.e., NPH)

C. Glyburide

D. Metformin

E. Short-acting insulin (e.g., regular)

14) Which of the following treatments are appropriate to recommend in a woman in labor with a positive screen for Group B *Streptococcus* at 35 weeks' gestation? The patient has no drug allergies.

A. Penicillin G

B. Ampicillin

C. Clindamycin

D. A and B only

E. A, B, and C

15) Strategies to lower infant exposure to medications through breast milk include all of the following *except*:

A. Recommend a drug with a shorter half-life

B. Recommend a drug with a low bioavailability

C. Recommend a highly protein bound drug

D. Recommend a drug considered safe for use in an infant

E. Recommend a highly lipophilic drug

16) The most common cause of infectious mastitis is:

A. *Streptococcus pyogenes*

B. *E. coli*

C. *Staphylococcus aureus*

D. *Candida albicans*

Chapter 62 - Contraception

1) A healthy woman who is 3 weeks postpartum and breast-feeding seeks contraception. She would like to have another child in 1 year. Which of the following is the preferred method of contraception?

A. Combined oral contraceptive

B. Progestin-only oral contraceptive

C. Depo-medroxyprogesterone acetate

D. Transdermal contraceptive

2) A 32-year-old woman comes to the pharmacy to pick up her prescription for norgestimate/ethinyl estradiol (Ortho-Cyclen). She complains of nausea and headaches since starting her oral contraceptive 5 months ago. What do you recommend?

A. Call her physician to change her prescription to another oral contraceptive with less estrogen

B. Call her physician to change her prescription to another oral contraceptive with less progestin

C. Buy a home pregnancy test to rule out pregnancy

D. Wait another 1 to 2 months to see if symptoms improve

3) A 33-year-old nonobese woman wants to discuss her contraceptive options. She is married with two children and does not desire to have additional children. Her medical history includes hypertension and migraines with aura. Which one of the following is the best approach to hormonal contraception for this patient?

A. Ortho Cyclen (combined oral contraceptive)

B. Implanon (implantable contraceptive)

C. Ortho Evra (transdermal patch)

D. Nuvaring (vaginal contraceptive)

4) An 18-year-old woman with a seizure disorder seeks contraception today. She is taking carbamazepine. Which of the following contraceptive methods would be most appropriate?

A. Combined oral contraceptive (with 35 mcg of ethinyl estradiol)

B. Depo-medroxyprogesterone acetate

C. Transdermal contraceptive

D. Progestin-only oral contraceptive

5) A 23-year-old frantic woman comes to the pharmacy asking for advice. She had sexual intercourse last night and her partner's condom broke. She states she has a past medical history of type 2 diabetes and hypothyroidism. What do you recommend?

A. Purchase a home pregnancy test

B. Buy levonorgestrel-containing emergency contraception at the pharmacy

C. Make an appointment with her physician to discuss emergency contraception

D. Do nothing and reassure her that she is not likely to get pregnant

6) A 22-year-old woman has been using Depo-Provera for the past year. She comes to the office for her quarterly injection (her last injection was 13 weeks ago). The nurse asks you about the administration of Depo-Provera, and you recommend that she:

A. Have the patient wait until her next menses before receiving the injection

B. Return to the office next week for her injection

C. Give the injection today but use a second method of contraception for the next cycle

D. Obtain a pregnancy test and if negative give the injection today

7) In which of the following situations would it be inappropriate to recommend combined oral contraceptives?

A. Sickle-cell disease

B. Hypertension treated with a diuretic and an average blood pressure of 172/92 mm Hg

C. History of migraines without aura in women less than 35 year of age

D. Dyslipidemia without coronary artery disease treated to goal LDL with a statin

8) Which one of the following is a noncontraceptive benefit of oral contraceptives?

A. Prevention of sexually transmitted diseases

B. Decreased risk of cervical cancer

C. Decrease in serum triglycerides

D. Decreased risk of endometrial and ovarian cancers

9) LR is a 27-year-old woman who started on a low dose combined oral contraceptive containing 20 mcg ethinyl estradiol (EE) 2 months ago. She went out of town for the weekend and missed two doses of her medication. It is the third week of her cycle. She is now asking for your opinion on how she should handle the situation. What would be the most appropriate response?

A. Take an active tablet as soon as possible (two tablets on that day) and then continue taking tablets daily, 1 each day. No additional contraceptive protection is recommended

B. Take an active tablet as soon as possible (two tablets on that day) and then continue taking tablets daily, 1 each day. Use condoms or abstain from sex until tablets have been taken for 7 days in a row. Finish the active tablets in the current pack and start a new pack the next day (i.e., do not take the seven inactive tablets).

C. Discard the current pack, allow bleeding to occur and then restart a new pack, taking 1 tablet each day. Use condoms or abstain from sex until the new pill pack has been taken for 7 days in a row

D. Take an active tablet as soon as possible (two tablets on that day) and then continue taking tablets daily, 1 each day. Use condoms or abstain from sex until tablets have been taken for 7 days in a row

10) KR is a 39-year-old nonsmoking female with a history of migraines with aura. She has two children with no immediate plans for others. She is obese and weighs 115 kg. What contraceptive method would be the best option?

A. Levonorgestrel IUD (Mirena)

B. Progestin implant (Implanon)

C. Combined oral contraceptive

D. Vaginal ring contraceptive

11) The most clinically useful indicator of approaching ovulation is:

A. Estrogen surge

B. LH surge

C. Progesterone drop

D. Corpus luteum degeneration

12) A 36-year-old patient who is fairly nonadherent to medications and has never been on hormonal contraception in the past is requesting contraception. She is a smoker. What would be the most appropriate recommendation?

A. Nuvaring (vaginal contraceptive)

B. Ortho-Cyclen (combined oral contraceptive)

C. Injectable depo-medroxyprogesterone

D. Micronor (progestin-only pill)

13) Use of the vaginal contraceptive ring would be most appropriate in which of the following women?

A. 30-year-old woman with hypothyroidism

B. 38-year-old woman who smokes one-pack-per-day

C. 36-year-old woman with migraines

D. 39-year-old woman with obesity

14) AT is a 26-year-old female with a history significant for depression, dysmenorrhea, and smoking. She is not currently using hormonal contraception. She and her boyfriend were on a cruise and did not use a condom and had unprotected sexual intercourse 5 days ago. What is the *best* recommendation?

A. Buy levonorgestrel-containing emergency contraception at the pharmacy

B. Buy a home pregnancy test

C. Inform her there is no emergency contraception option for her particular situation

D. Call her clinician with a recommendation for a verbal order for ulipristal emergency contraception

15) A 25-year-old single, nulliparous, nonsmoking female with no significant medical history wants an easy, highly effective, and quickly reversible contraceptive method. What would you recommend?

A. Combined oral contraceptive

B. Progestin implant (Implanon)

C. Depo-medroxyprogesterone acetate

D. Progestin-only oral contraceptive

Chapter 63 - Menstruation-Related Disorders

1) ST is a 17-year-old female who complains of amenorrhea for 4 months. She experienced menarche at the age of 14 years. A pregnancy test is performed and found to be negative. She is a distance runner who describes her appetite as “healthy”. What is the next step in evaluating this complaint?

A. Check her serum prolactin concentration

B. Check her thyroid-stimulating hormone (TSH) concentration

C. Quantify her level of exercise relative to the amenorrhea

D. Evaluate whether she may have anorexia

2) Regardless of the etiology of amenorrhea, which of the following lifestyle interventions is most appropriate?

A. Increase the dietary intake of folate and vitamin E

B. Increase the dietary intake calcium and vitamin D

C. Decrease the intake of alcohol

D. Decrease the level of exercise

3) KS is a 36-year-old female who has not had a period for 8 months. She is not pregnant; her serum prolactin concentration is observed to be twice the upper limit of normal. She displays no symptoms of polycystic ovary syndrome (PCOS). Which of the following is most appropriate for RD at this time?

A. An oral contraceptive containing 30 mcg ethinyl estradiol plus levonorgestrel

B. Bromocriptine 2.5 mg by mouth three times daily

C. Medroxyprogesterone acetate (MPA) 10 mg by mouth for 10 days

D. Metformin 1,000 mg by mouth twice daily

4) AB is a 35-year-old female who presents for follow-up of treatment for menorrhagia. She has been taking mefenamic acid 500 mg by mouth followed by 250 mg by mouth four times daily at the start of menses for the past three menstrual cycles. She notes that there appears to have been no improvement in her menorrhagia. Her menses continue to last approximately 7 days per month. A CBC shows an overall 2 g/dL (20 g/L; 1.24 mmol/L) drop in hemoglobin over the past 15 months. Her hemoglobin has not increased since starting the mefenamic acid. Her past medical history is significant for a deep vein thrombosis 3 years ago secondary to her oral contraceptive. Which of the following is most appropriate first-line therapy for AB?

A. Continue mefenamic acid 500 mg by mouth followed by 250 mg by mouth four times daily during menses for six more months

B. Discontinue mefenamic acid and begin a combination oral contraceptive with 50 mcg ethinyl estradiol plus desogestrel

C. Discontinue mefenamic acid and begin tranexamic acid 1,300 mg by mouth every 8 hours at the start of menses and for 4 to 7 days as needed for heavy bleeding

D. Continue mefenamic acid and add the levonorgestrel intrauterine device (IUD) releasing 20 mcg levonorgestrel daily

5) Which of the following statements is true regarding the levonorgestrel IUD in women with menorrhagia?

A. It should never be used in nulliparous women

B. It reduces menstrual flow by a maximum of 25%

C. It is a therapeutic option for any woman at low risk for sexually transmitted diseases

D. Its use increases the need for hysterectomy

6) In women with PCOS as a cause of anovulatory dysfunction, which of the following may result in improved menstrual irregularity and ovulatory function, reduced hirsutism, increased insulin sensitivity, and improved response to fertility treatments?

A. Metformin

B. Rosiglitazone

C. Smoking cessation

D. Weight loss

7) BB is a 32-year-old female who presents with complaints of irregular menses. She is hirsute around the jaw line, her BMI is 32 kg/m^2, and her waist circumference is 40 inches (101.6 cm). A pelvic ultrasound reveals polycystic ovaries. Which of the following is most appropriate for BB?

A. A combination oral contraceptive containing ethinyl estradiol and drospirenone

B. A combination oral contraceptive containing ethinyl estradiol and levonorgestrel

C. Metformin 850 mg by mouth twice daily

D. Pioglitazone 15 mg by mouth daily

8) Hyperkalemia is most likely to result from which of the following products used in the management of PCOS?

A. A combination oral contraceptive containing ethinyl estradiol and drospirenone

B. A combination oral contraceptive containing ethinyl estradiol and levonorgestrel

C. Metformin 850 mg by mouth twice daily

D. Pioglitazone 15 mg by mouth daily

9) Improved insulin sensitivity in patients with PCOS may result in a reduction in circulating androgen concentrations, increased ovulation rates, and improved glucose tolerance. This may occur with:

A. Estrogen therapy alone

B. Combination oral contraceptive

C. MPA

D. Metformin

10) Excessive anovulatory bleeding in the adolescent population should result in an evaluation for:

A. Hypoprothrombinemia
B. Hyperandrogenism
C. Hypoestrogenism
D. Hypothyroidism

11) Which of the following agents is most appropriate for the management of dysmenorrhea in an adolescent who is not sexually active?

A. Depot MPA 150 mg intramuscularly every 12 weeks
B. Ibuprofen 800 mg by mouth three times daily during menses
C. Levonorgestrel IUD releasing 20 mcg levonorgestrel daily
D. Oral contraceptive with 35 mcg ethinyl estradiol plus norgestimate daily

12) The most cost-effective treatment for menorrhagia is:

A. A combination oral contraceptive
B. Levonorgestrel IUD
C. Oral MPA
D. Depot MPA

13) Which of the following nonpharmacologic options is effective for the treatment of dysmenorrhea?

A. High protein diet
B. Topical ice packs
C. Reduced exercise
D. Topical heat

14) Dysmenorrhea is experienced by as many as _____% of women of childbearing age.

A. 20
B. 40
C. 70
D. 90

15) CO is a 30-year-old woman diagnosed with PMDD after charting her symptoms for two cycles and attempting (and failing) nonpharmacologic interventions for her symptoms. She is married and does not wish to use any form of birth control. Which of the following agents would be most appropriate for managing CO's PMDD?

A. Continuous treatment with paroxetine

B. Luteal phase treatment with paroxetine

C. Luteal phase treatment with fluoxetine

D. 90 mcg levonorgestrel and 20 mcg ethinyl estradiol dosed continuously for 12 months

Chapter 64 - Endometriosis

1) JH is a 35-year-old obese (BMI >30 kg/m^2) woman with a history of two uncomplicated births via spontaneous vaginal delivery. She reports menarche at age 13 and menstrual cycles of approximately 25 days. She breast-fed each child for approximately 10 months. Based on these data, which of the following characteristics confers increased risk of endometriosis in JH?

A. Age of menarche

B. Body mass index

C. Duration of lactation

D. Length of menstrual cycle

E. Multiple deliveries

2) Which of the following is a proposed theory for why endometrial tissue is found outside the uterus in women with endometriosis?
I. Differentiation of stem cells from bone marrow into endometrial-like tissues
II. Malignant and uncontrolled division of abnormal cells in the peritoneal cavity
III. Retrograde flow of menstrual tissue through the fallopian tubes

A. III only

B. I and II only

C. I and III only

D. II and III only

E. I, II, and III

3) Which of the following accurately describes findings in patients with pain caused by endometriosis?

A. Low levels of prostaglandins

B. Elevated levels of substance P

C. Increased density of nerve fibers is found near endometrial lesions

D. Correlation between size and location of endometrial lesions and severity of pain

E. Decreased concentrations of tumor necrosis factor-α and interleukins 1, 6, and 8

4) Which of the following mechanisms may lead to infertility in women with endometriosis?
I. Inflammatory cytokines in peritoneal fluid induce sperm DNA damage.
II. Hormone dysregulation leads to decreased ovarian reserve.
III. Anatomic abnormalities physically block fallopian tubes.

A. III only
B. I and II
C. I and III
D. II and III
E. I, II, and III

5) CK is a 50-year-old female who has suffered from endometriosis since age 16. Over the years, she has experienced both pain and infertility, and she and her husband selected to adopt two children 10 years ago. Her last surgical treatment was 4 years ago, and she presents again today with moderate-to-severe pain. What are the most appropriate treatment goals for CK based on these data?
I. Preserve fertility.
II. Preserve ovarian function.
III. Relieve pain.

A. III only
B. II only
C. I and III only
D. II and III only
E. I, II, and III

6) KS is a 15-year-old female who presents to her family practitioner for followup after presenting with severe menstrual pain 6 months prior. At that time, she was prescribed a low-dose combined oral contraceptive pill continuously. Today, KS reports that her pain has not improved. Based on this information, which of the following options is most appropriate at this time?

A. Change current oral contraceptive to cyclic dosing.
B. Switch therapy to the levonorgestrel intrauterine system.
C. Switch therapy to subcutaneous leuprolide.
D. Add ibuprofen during menstrual cycles.
E. Refer for laparoscopic evaluation.

7) Which of the following medical therapies is considered a drug treatment of first choice for endometriosis?

A. Anastrozole (oral)

B. Danazol (vaginal)

C. Depot medroxyprogesterone (subcutaneous)

D. Nafarelin (nasal spray)

E. Naproxen (oral)

8) Which of the following side effects is common to the GnRH agonists, aromatase inhibitors, and depot medroxyprogesterone?

A. Bone mineral density loss

B. Breakthrough bleeding

C. Hirsuitism

D. Hot flashes

E. Nausea/vomiting

9) What characteristic would preclude use of combined oral contraceptive pills to treat endometriosis pain in a woman over age 35 due to increased risk of serious side effects?

A. Diabetes

B. Hypertension

C. Seizure medications

D. Tension headaches

E. Tobacco use

10) Which of the following statements is *true* regarding add-back therapy?

A. Add-back therapy prevents hot flashes and bone loss.

B. Add-back therapy always includes an estrogen and progestin.

C. Add-back therapy is likely to stimulate new endometrial growth.

D. Add-back therapy is only started after 12 months of GnRH agonist therapy.

E. Add-back therapy dosing is similar to the hormonal doses used in contraception.

11) A 22-year-old female with endometriosis prefers to try a “natural and alternative” approach to treating her pain before proceeding with traditional medical therapies. Which of the following options has data to support its effectiveness?

A. Acupuncture

B. Calcium supplementation

C. Cognitive behavioral therapy

D. Increased salmon in diet

E. Vitamin D supplementation

12) RH is a 21-year-old, unmarried, college student with severe endometriosis pain that has been unresponsive to 6 months treatment with depot medroxyprogesterone. Her PMH also includes seasonal allergic rhinitis, asthma, migraine with aura, and allergy to aspirin products. Her medications include loratadine 10 mg by mouth daily, fluticasone/salmeterol 100/50 one puff twice a day, albuterol HFA two puffs every 6 hours as needed, and sumatriptan 50 mg by mouth as needed. RH has good prescription drug insurance that covers all commonly utilized endometriosis treatments. In addition to discontinuation of the depot medroxyprogesterone, which of the following treatment recommendations would be best for RH based on the information given?

A. Start oral danazol.

B. Start letrozole, estradiol, and norethindrone.

C. Start leuprolide, norethindrone, and oxycodone.

D. Start a low-dose combined oral contraceptive pill.

E. Refer for laparoscopy, followed by retreatment with depot medroxyprogesterone.

13) TJ is a 65-year-old female who has suffered from endometriosis for most of her life. Five years ago, she underwent hysterectomy with preservation of her ovaries. Prior to that surgery, she had not had a menstrual cycle in 8 months time. Today, TJ again presents with pelvic pain that is assessed to be due to relapsing endometriosis. Her PMH is also positive for hypertension, hyperthyroidism, and osteoporosis. Her medications include lisinopril 10 mg orally daily, amlodipine 5 mg orally daily, levothyroxine 75 mcg orally daily, alendronate 70 mg orally weekly, and calcium/vitamin D supplementation. Which of the following therapies is most reasonable to recommend at this time?

A. Anastrozole

B. Depot medroxyprogesterone

C. Goserelin

D. Naproxen

E. Surgical removal of ovaries

14) JW, a 34-year-old female with endometriosis, just underwent conservative laparoscopic surgery 2 months ago in an attempt to improve her fertility. She has not yet achieved pregnancy. What is the most logical next step in JW's treatment plan?

A. Start dietary therapy.

B. Start a GnRH agonist.

C. Start contraceptive ring.

D. Continue watchful waiting.

E. Start assisted reproductive efforts.

15) Which of the following monitoring plans is most appropriate for a patient receiving oral danazol for endometriosis pain?

A. Degree of pain relief at 6 months and liver function tests every 3 months

B. Degree of pain relief at 3 months and serum cholesterol every 6 months

C. Degree of pain relief at 3 months and bone mineral density scan at 1 year

D. Degree of pain relief at 2 months and bone mineral density scan at 6 months

E. Degree of pain relief at 2 months, liver function tests every 3 months, and serum cholesterol every 3 months

Chapter 65 - Hormone Therapy in Women

1) The most effective treatment to alleviate postmenopausal vasomotor symptoms (hot flushes and night sweats) is:

A. Estrogen therapy

B. Selective estrogen-receptor modulators (SERMs)

C. Testosterone therapy

D. Clonidine

2) Which of the following CYP450 isoenzymes metabolizes both estrogen and medroxyprogesterone?

A. 3A4

B. 1A2

C. 2D6

D. All of the above

3) Continued vasomotor symptoms in a 52-year-old postmenopausal woman receiving 0.3 mg of oral conjugated equine estrogens can be managed by:

A. Changing to a SERM

B. Increasing the daily estrogen dose

C. Decreasing the daily estrogen dose

D. None of the above

4) Non-oral forms of estrogens available in the United States include:

A. Transdermal patches

B. Topical emulsion, spray, and gels

C. Intravaginal rings, cream, and tablet

D. All of the above

5) Conjugated equine estrogen and medroxyprogesterone therapy can increase the risk of:

A. Venous thromboembolism

B. Stroke

C. Colon cancer

D. Both A and B

6) Which of the following would be the best option to treat moderate hot flushes in a 55-year-old woman with breast cancer?

A. Estrogen

B. Progestogen

C. Paroxetine

D. Tibolone

7) In women with hormone-receptor-positive breast cancer suffering from hot flushes, tibolone has been associated with:

A. An increased risk for breast cancer recurrence

B. A decreased risk for breast cancer recurrence

C. No effect in breast cancer recurrence

D. An increased risk of thrombocytopenia

8) Elevation in the serum concentrations of which of the following hormones in a 30-year-old woman can aid in confirming the diagnosis of primary ovarian insufficiency?

A. TSH

B. Prolactin

C. FSH

D. Estradiol

9) Long-term hormone therapy can be routinely prescribed for which of the following conditions?

A. Coronary heart disease

B. Dementia unresponsive to other therapies

C. Prevention of colon cancer

D. None of the above choices is correct

10) Which of the following is considered a low dose of conjugated equine estrogens?

A. 0.9 mg daily

B. 0.625 mg

C. 0.3 mg

D. 0.014 mg

11) For osteoporosis prevention, a 65-year-old woman at high risk for breast cancer may receive:

A. Estrogen

B. Raloxifene

C. Clonidine

D. Testosterone

12) Which of the following is effective for the treatment of severe hot flushes in a 54-year-old healthy menopausal woman?

A. Estrogen and progestogen therapy

B. Black cohosh

C. Raloxifene

D. A and B

13) A common adverse effect experienced by women taking raloxifene is:

A. Gastrointestinal upset

B. Hot flushes and night sweats

C. Vaginal spotting

D. Headache

14) Young women with primary amenorrhea in whom secondary sex characteristics have failed to develop should *initially* receive:

A. High doses of estrogen with a progestin

B. Low doses of estrogen with a progestin

C. High doses of estrogen without a progestin

D. Low doses of estrogen without a progestin

15) Women with primary ovarian insufficiency should reassess whether to continue or discontinue the use of hormone therapy:

A. Around the age of natural menopause

B. After 5 years of hormone therapy use

C. After 8 years of hormone therapy use

D. They should continue hormone therapy life-long

Chapter 66 - Erectile Dysfunction

Results Reporter

1) A patient is prescribed vardenafil oral dispersible tablets for erectile dysfunction. The patient should be instructed to:

A. Swallow each dose 1 hour before intercourse

B. Take each dose without any liquids

C. Put the tablet under the tongue

D. Take the dose after a meal

E. Repeat the dose, if no erection in 2 hours

2) After several weeks of taking vardenafil oral dispersible tablets for erectile dysfunction as prescribed, the patient returns to the physician's office. The patient complains that the medication does not seem to be working. He has taken at least three doses on three different days. The most appropriate action that the physician should take at this time is:

A. Double the dose of vardenafil

B. Repeat instructions on proper medication use and continue vardenafil for at least seven to eight doses

C. Switch the patient to tadalafil

D. Switch the patient to intracavernosal alprostadil

E. Recommend that the patient have surgery

3) If a phosphodiesterase inhibitor is taken with a CYP3A4 inhibitor, the drug interaction may result in:

A. Decreased efficacy of the phosphodiesterase inhibitor

B. Priapism

C. Increased blood pressure

D. Acute hearing loss

E. Nausea and vomiting

4) Which one of the following statements about phosphodiesterase inhibitors is correct?

A. If the patient has taken a nitrate, all phosphodiesterase inhibitors should be held for at least 1 week

B. If a patient needs to take an α-adrenergic antagonist, blood pressure should be stabilized before starting a phosphodiesterase inhibitor

C. Tadalafil may prolong the QT interval in patients taking Type IA antiarrhythmics

D. Erythromycin will increase hepatic catabolism of all phosphodiesterase inhibitors

E. A common adverse effect of all phosphodiesterase inhibitors is low back and muscle pain

5) If a patient develops an acute loss of vision while taking vardenafil, it is most likely that this patient has developed:

A. Floppy iris syndrome

B. Retinitis pigmentosa

C. Cyanopsia

D. Nonarteritic anterior ischemic optic neuropathy

E. Glaucoma

6) Which one of the following statements about intracavernosal alprostadil is correct?

A. Alprostadil inhibits adenylate cyclase and increases cGMP

B. It has a low potential to produce systemic adverse effects

C. The injections must be administered by a nurse or physician

D. The most common adverse effect is priapism

E. A cavernosal injection should be made into the ventral surface of the penis.

7) Which of these testosterone supplements has been associated with severe hepatotoxicity?

A. Intramuscular testosterone enanthate

B. Intramuscular testosterone cypionate

C. Transdermal testosterone patch

D. Buccal testosterone system

E. Oral alkylated testosterone tablet

8) Which of the following adverse effects of testosterone supplements necessitates discontinuing its use?

A. Increased blood pressure

B. Gynecomastia

C. Hypercholesterolemia

D. Hematocrit of 55%

E. Increased hepatic transaminases

9) Which of the following patients with erectile dysfunction can be safely treated with tadalafil?

A. A patient with congestive heart failure, NYHA classification IV

B. A patient with poorly controlled essential hypertension

C. A patient who takes isosorbide dinitrate every day

D. A patient who has had cyanopsia with sildenafil

E. A patient with unstable angina

10) Which one of the following statements about the phosphodiesterase–nitrate interaction is correct?

A. Topical nitrates can be used safely with phosphodiesterase inhibitors

B. When compared to sildenafil, tadalafil has less potential to interact with nitrates

C. The mechanism of the interaction is that both phosphodiesterase inhibitors and nitrates reduce cGMP

D. The interaction produces symptoms and signs of pulmonary failure

E. Phosphodiesterase inhibitors should be avoided for at least 24 hours after the last nitrate dose

11) A 65-year-old white man was prescribed tadalafil 10 mg orally before sexual intercourse. The patient returns to the pharmacy and complains that the medication does not work and that nothing happens after he took each of the first four doses. The patient is otherwise healthy and takes no other medications. He weighs 70 kg. The pharmacist correctly counsels the patient in the following way. Identify from the list below which counseling point is correct:

A. Sexual foreplay prior to attempting sexual intercourse is necessary

B. Your dose of tadalafil is subtherapeutic and needs to be increased

C. Tadalafil must be taken on an empty stomach to maximize its effectiveness

D. Tadalafil should always be used with a vacuum erection device

E. Tadalafil does not work in all patients. In this case, your physician can switch you to sildenafil

12) Which one of the following drugs/drug categories commonly causes erectile dysfunction?

A. Laxatives

B. Insulin

C. Lipid-lowering agents

D. Diuretics

E. Central nervous system stimulants

13) A 60-year-old man with essential hypertension and diabetes mellitus had a prostatectomy last year. He now complains of dry sex. This patient has this type of sexual dysfunction.

A. Decreased libido

B. Erectile dysfunction

C. Retrograde ejaculation

D. Infertility

14) Which of the following neurotransmitters is responsible for producing an erection?

A. Epinephrine

B. Dopamine

C. cGMP

D. ATP

E. GTP

15) A man and woman, both 65 years old, seek treatment for erectile dysfunction. They have been married for 25 years and have had a good marriage. It is obvious that the couple love each other. The husband hates to take pills or injections. He has no concurrent medical illnesses and takes no medications. The best choice treatment would be:

A. Psychotherapy

B. Vacuum erection device

C. Androgel

D. MUSE

E. Viagra

Chapter 67 - Benign Prostatic Hyperplasia

1) To minimize hypotension due to terazosin, all of the following strategies are recommended, except:

A. Prescribe doses at bedtime

B. Start with a low dose

C. Slowly titrate up to a full maintenance dose

D. Avoid use concomitantly with other blood pressure-lowering medications

E. Use with an α-adrenergic stimulant

2) Which one of the following drugs inhibits type 5 phosphodiesterase?

A. Tadalafil

B. Finasteride

C. Alprostadil

D. Leuprolide

E. Prazosin

3) Which of the patient's symptoms listed below is an irritative voiding symptom?

A. Slow urinary stream

B. Urgency

C. Small volume voids

D. Hesitancy

E. Incomplete bladder emptying

4) A patient complains of LUTS despite treatment with tamsulosin 0.4 mg daily for 1 year. The physician asks the patient to complete the AUA Symptom Index. Today, the patient's score is 25. One year ago, the patient's score was 35. Which of the following statements is correct about the AUA Symptom Index score in this patient?

A. This patient has not had an adequate treatment trial with tamsulosin. He should continue tamsulosin 0.4 mg daily

B. Based on the score alone, the patient must undergo surgical management

C. The score indicates that the patient's symptoms are mild

D. The current score shows insignificant improvement as a result of drug treatment

E. The score appears to correlate with this patient's perception that his symptoms are bothersome

5) The patient asks about medications for BPH that are similar to terazosin. Which one of the following statements is correct?

A. Tamsulosin and alfuzosin are pharmacologically uroselective agents

B. Immediate-release terazosin is more likely to cause first-dose syncope than tamsulosin

C. Titrating up the daily dose of alfuzosin or silodosin may be required to improve LUTS

D. Concurrent use of tamsulosin with antihypertensives is a contraindication

E. Doxazosin is not recommended for BPH because of its short half-life

6) Which one of the statements about α-adrenergic antagonist related to floppy iris syndrome is correct?

A. Only tamsulosin has been associated with this adverse effect

B. This adverse effect is associated with dilated pupils

C. Permanent visual loss can be a consequence of this adverse effect

D. The α-adrenergic antagonist should be held before cataract surgery

E. Cataract surgery is a contraindication for α-adrenergic antagonist use

7) Which one of the following statements about finasteride is true?

A. It blocks intraprostatic phosphodiesterase, thereby increasing dihydrotestosterone production

B. Because it reduces serum testosterone levels, its adverse effects are erectile dysfunction and decreased libido

C. To achieve the best clinical response, titrating up the daily dose may be necessary

D. It causes cyanopsia, which can be irreversible

E. An adequate clinical trial is 6 months in length.

8) Which of the following statements about combination therapy for BPH is correct?

A. The most effective combination regimen is an α-adrenergic antagonist plus an anticholinergic agent

B. Combination therapy with an α-adrenergic antagonist plus a 5α-reductase inhibitor is more expensive and is associated with more adverse effects than single-drug treatment of BPH

C. Combination therapy should be considered first-line therapy for all patients with BPH

D. Combination therapy offers no benefit in delaying disease progression when compared with single-drug treatment using an α-adrenergic antagonist

E. The combination of α-adrenergic antagonist plus tadalafil is recommended in patients with BPH and irritative voiding symptoms

9) Which one of these medications can worsen LUTS?

A. Furosemide

B. Docusate

C. Prednisone

D. Lisinopril

E. Simvastatin

10) AA is a 60-year-old man with moderately severe obstructive voiding symptoms secondary to BPH. Digital rectal exam suggests that the patient's prostate gland is 40 g. He was just started on drug treatment for this problem 1 week ago. The patient also has hypertension. His medications include enalapril, Proscar, and Hytrin. Today, the patient complains of severe dizziness and syncopal episodes × 7 days. He also complains of tiredness throughout the day. The physician thinks that the patient's adverse effects are due to his drug treatment for BPH. The best option for managing this patient's adverse effects is:

A. Discontinue Hytrin; when blood pressure is stabilized, start tamsulosin

B. Switch the patient from Proscar to Avodart

C. Discontinue all medications for BPH and recommend that the patient has prostate surgery

D. Discontinue all medications for BPH and start tadalafil

E. Add tolterodine to the BPH treatment regimen

11) BB is a 55-year-old man with a urinary flow rate of 9 mL/s, prostate 20 g, and complaints of urinary frequency and urgency. The AUA symptom score is 7. This patient's symptoms are attributed to BPH. The severity of BB's symptoms is correctly characterized as:

A. Mild

B. Moderate

C. Severe

D. Terminal

E. Unable to determine

12) The best management approach for BB is:

A. Watchful waiting

B. An α-adrenergic antagonist

C. A 5α-reductase inhibitor

D. A combination of α-adrenergic antagonist and 5α-reductase inhibitor

E. An open prostatectomy

13) When counseling a patient taking Flomax, which one of the following instructions is correct?

A. Take each dose at bedtime

B. Start with 1 mg/day and slowly titrate up over several weeks

C. Flomax must not be taken with nitrates

D. Take this product in divided doses during the day

E. Flomax can be taken with antihypertensives

14) When used for BPH, which of the following statements about fesoterodine is correct?

A. It reduces the size of an enlarged prostate

B. It halts disease progression

C. It reduces urinary urgency and frequency

D. It decreases PSA serum levels

E. An adequate clinical trial is 6 months

15) A patient is prescribed both tadalafil and doxazosin, extended-release formulation, both daily, for treatment of both erectile dysfunction and BPH. Which adverse effect is most likely to occur because of the use of both medications?

A. Decreased libido

B. Ejaculatory dysfunction

C. Hypotension

D. Floppy iris syndrome

E. Dry mouth

Chapter 68 - Urinary Incontinence

1) A 75-year-old woman presents with urinary frequency associated with a sudden compelling desire to urinate associated with the onset of urinary incontinence (UI). It has been progressive for several years and she is now using three pads per day for the incontinence. She is voiding every 2 hours during the day and wakes up three times per night to void. She has incontinence both day and night. Urinalysis is unremarkable and postvoid residual is 25 mL. The most likely diagnosis is:

A. Stress urinary incontinence (SUI)

B. Urge urinary incontinence (UUI)

C. Overflow incontinence

D. Functional incontinence

E. Mixed incontinence

2) Following the initiation of behavioral therapy for UUI, a patient requests additional treatment. Appropriate pharmacologic therapy in this setting is:

A. Phenylpropanolamine

B. Solifenacin

C. Bethanechol

D. Propranolol

E. Tamsulosin

3) The muscarinic receptor subtype responsible for the emptying contraction of the detrusor muscle is:

A. M1

B. M2

C. M3

D. M4

E. M5

4) The most common etiology of overactive bladder (OAB) and UUI is:

A. Stroke

B. Spinal cord injury

C. Idiopathic

D. Bladder outlet obstruction

E. Bladder cancer

5) Overflow incontinence is characterized by:

A. Young age of onset in most cases

B. Elevated postvoid residual

C. Worsening of symptoms on α-adrenergic blockers

D. Sphincter dysfunction

E. Detrusor overactivity

6) A 50-year-old premenopausal woman presents to her primary provider with bothersome symptoms of SUI. She reports losing a few drops of urine two to four times a week. Her physical exam is unremarkable. Appropriate initial therapy consists of behavioral modification and…

A. Absorbent pad

B. Pelvic floor muscle exercises

C. Diphenhydramine

D. Darifenacin

E. Vaginal estrogen

7) An 80-year-old man residing in a nursing home has urgency and urge incontinence that results in loss of urine several times a day as well as nocturnal enuresis. He voids every 5 to 6 hours during the day. This resident also has

hypertension, heart failure, severe arthritis, diabetes, and mild dementia. The most appropriate choice of treatment is:

A. An antimuscarinic agent

B. Suprapubic catheter

C. Timed toileting

D. Absorbent pads

E. Bed alarm

8) A 55-year-old postmenopausal, obese woman who smokes complains of small volume of urine leakage when she coughs or laughs. She reports no urinary frequency or incontinent episodes at night. She gave birth to two children in her 30s. Her risk factors for stress incontinence include:

A. Postmenopausal status

B. Childbirth

C. Obesity

D. Age

E. All of the above

9) A 50-year-old woman has newly diagnosed OAB. Her current medications include clarithromycin and fluoxetine. Which of following agents is least likely to be associated with a significant drug–drug interaction?

A. Alfuzosin

B. Darifenacin

C. Fesoterodine

D. Trospium

E. Oxybutynin IR

10) A 56-year-old woman with OAB comes to your pharmacy to pick up a new prescription for oxybutynin 5 mg orally three times daily. Which of the following counseling points regarding adverse effects is *correct*?

A. A common adverse effect is blue-tinted vision

B. Dry mouth may be dose dependent

C. Constipation does not occur with this class of drug

D. UI may be exacerbated

E. Cognitive adverse effects can be mitigated by concomitant administration of anticholinesterases

11) Which of the following statements about mirabegron is correct?

A. It is a β_3-adrenergic antagonist

B. It has been approved for stress incontinence in Europe only

C. It should be swallowed whole

D. Its use is associated with bradycardia

E. It should not be administered concomitantly with oral estrogen replacement

12) A 65-year-old woman is newly diagnosed with OAB with associated urinary frequency and incontinence. She is fearful of having dry mouth that may interfere with denture wearing. Of the following agents, which is most likely to result in dry mouth?

A. Alfuzosin

B. Tamsulosin

C. Estradiol

D. Mirabegron

E. Oxybutynin IR

13) Mirabegron is indicated for treatment of:

A. UUI

B. SUI

C. Functional UI

D. Overflow incontinence

E. All of the above

14) A 56-year-old woman comes to your pharmacy to pick up a new prescription for oxybutynin gel 10%. Which of the following counseling points is *correct*?

A. Common adverse effects are dry mouth, application site reactions, and dizziness

B. Do not apply sunscreen within 24 hours after application of gel

C. Do not shower within 6 hours after application of gel

D. Apply to chest only

E. Administration results in similar dry mouth rates as oxybutynin immediate release

15) An appropriate intervention for persistent SUI in a woman who has failed pelvic floor exercises, medications, and/or behavioral modification is

A. Midurethral sling

B. Onobotulinum toxin A

C. Neuromodulation

D. Suprapubic tube placement

E. Posterior tibial nerve stimulation

Chapter 69 - Systemic Lupus Erythematosus

1) Which of the following individuals would be at *highest* risk for developing idiopathic SLE?

A. 20-year-old African American female

B. 25-year-old white female

C. 30-year-old Hispanic male

D. 40-year-old Asian male

2) There is evidence that SLE can be precipitated in a genetically susceptible individual by:

A. Epstein–Barr virus

B. Pesticides

C. Ultraviolet light

D. All of the above

3) A patient is being considered for a trial of a new drug for lupus. She has a malar rash, oral ulcers, and joint tenderness. The study requires that participants fulfill the 2012 Systemic Lupus International Collaborating Clinics Classification Criteria for SLE. What additional finding would qualify this individual for the trial?

A. Anticardiolipin antibody

B. Proteinuria of 1 g in 24 hours

C. Seizures

D. White blood cell count of 5000/mm^3

4) Patients with SLE should be encouraged to stop smoking. It has been associated with all of the following *except*:

A. Decreased effectiveness of hydroxychloroquine

B. Decreased titers of anti-double-stranded DNA

C. Increased incidence of hemorrhagic cystitis with cyclophosphamide

D. Increased incidence of rash with scarring

5) Which of the following drugs decreases survival of B cells by inhibiting B-lymphocyte stimulator?

A. Abatacept

B. Belimumab

C. Rituximab

D. Tocilizumab

6) A 20-year-old African American woman develops Class III lupus nephritis. What is the recommended induction treatment for her disease?

A. High-dose IV cyclophosphamide

B. Low-dose IV cyclophosphamide

C. Mycophenolate mofetil

D. Rituximab

7) A patient with generalized SLE develops severe neurologic manifestations thought to be related to inflammation. There is good evidence supporting the use of the following drugs in this situation *except*:

A. Azathioprine

B. Belimumab

C. Cyclophosphamide

D. Methylprednisolone

8) A patient has cutaneous lupus on her face and treatment is needed. She is very concerned about her appearance. Which of the following is *most* associated with causing skin atrophy and telangiectasias?

A. Hydroxychloroquine

B. Methotrexate

C. Topical pimecrolimus

D. Topical triamcinolone acetonide

9) A 35-year-old woman who wants to have a baby in the future is found to have SLE. Which of the following drugs has the *greatest* potential to adversely affect fertility?

A. Azathioprine

B. Cyclophosphamide

C. Hydroxychloroquine

D. Mycophenolate mofetil

10) Which of the following drugs used to treat SLE could be started before pregnancy and continued throughout pregnancy with the *least* potential for harm to a fetus?

A. Cyclophosphamide

B. Dexamethasone

C. Hydroxychloroquine

D. Mycophenolate mofetil

11) A patient with definite antiphospholipid syndrome had her first venous thrombosis and was treated for the acute episode. What should initially be used for secondary thromboprophylaxis for this patient?

A. Low-molecular-weight heparin in prophylactic doses

B. Low-dose aspirin

C. Simvastatin

D. Warfarin adjusted to an international normalized ratio (INR) of 2 to 3

12) What manifestation of SLE is common in idiopathic lupus but rare in drug-induced lupus?

A. Arthritis

B. Nephritis

C. Pleuritis

D. Rash

13) A patient is receiving belimumab for treatment of SLE. His immunization history and needs are being assessed. Which of the following vaccines should be avoided while he is receiving that drug?

A. Hepatitis B

B. Influenza

C. Pneumococcal

D. Zoster

14) A patient who is going to be treated with cyclophosphamide is considered to be at significant risk for hemorrhagic cystitis. Which of the following will decrease her chances of developing this complication?

A. Alkalinization of urine

B. Cholestyramine

C. Folic acid

D. Mesna

15) Eye examinations are recommended for patients receiving:

A. Belimumab

B. Cyclophosphamide

C. Hydroxychloroquine

D. Mycophenolate mofetil

Chapter 70 - Solid-Organ Transplantation

1) Which of the following patients would be a candidate for liver transplantation?

A. A 45-year-old male with cirrhosis secondary to hepatitis C and a history of IV drug abuse

B. A 60-year-old female alcoholic with cirrhosis secondary to α-1-antitrypsin disease

C. A 52-year-old female with cirrhosis secondary to hepatitis B and active breast cancer

D. A 58-year-old male with a history of hepatitis C and no manifestations of end-stage liver disease

2) Which of the following is true regarding renal transplantation?

A. Renal transplantation decreases life expectancy compared to dialysis

B. Renal transplantation reduces quality of life because of complications from immunosuppressants

C. Living donor organs are associated with decreased graft survival

D. Renal transplantation is less costly overall than dialysis

3) Which of the following is true? After kidney transplantation:

A. Serum creatinine will normalize by postoperative day 1

B. Formulas such as Cockroft-Gault should be used to estimate renal function in the early post-operative period

C. Pretransplant anemia may take several weeks to resolve

D. Recovery of renal function is faster after deceased donor kidney transplant

4) Which type of rejection occurs when the recipient has preformed antibodies to specific donor antigens?

A. Hyperacute rejection

B. Acute cellular rejection

C. Antibody mediated rejection

D. Chronic rejection

5) DE received a heart transplant 6 months ago. He has a history of renal insufficiency, hypertension (BP = 160/95), hyperlipidemia, and anemia (Hgb = 9.1 g/dL[91 g/L; 5.65 mmol/L]). His most recent heart biopsy showed no signs of rejection. His current immunosuppressant regimen is: tacrolimus 3 mg by mouth twice a day (last level 11 ng/mL [11 mcg/L; 14 nmol/L]), mycophenolate mofetil 1,000 mg by mouth twice daily, prednisone 5 mg by mouth daily. Which of the following is true?

A. Replacing tacrolimus with sirolimus may improve his hypertension and hyperlipidemia

B. Replacing tacrolimus with sirolimus may improve his kidney function and hypertension

C. Replacing tacrolimus with cyclosporine may improve his hypertension and kidney function

D. Replacing tacrolimus with sirolimus may improve his kidney function and hemoglobin

6) GY is a 48-year-old kidney transplant recipient who is receiving an immunosuppressant regimen consisting of cyclosporine and mycophenolate mofetil. She is experiencing soreness in her mouth and notices her gums seem to be growing over her teeth. She wants to know if any of the medications may be responsible. What change can the clinician consider?

A. Change mycophenolate to sirolimus

B. Change mycophenolate to azathioprine

C. Change cyclosporine to tacrolimus

D. Add belatacept to her regimen

7) Which of the following immunosuppressants has the longest half-life?

A. Cyclosporine

B. Tacrolimus

C. Mycophenolate mofetil

D. Sirolimus

8) Deceased donor organs are allocated based on medical need for all of the following transplants *except*:

A. Heart

B. Kidney

C. Liver

D. Lung

9) In the perioperative phase of liver transplantation, which of the following changes is expected to occur?

A. Oxidation capacity increases

B. CYP activity increases

C. Albumin concentration decreases

D. Renal elimination of drugs increases

10) Denervation of the heart following heart transplant results in which of the following pharmacologic changes?

A. Adenosine exerts negative chronotropic effect

B. Decreased potential for AV block with verapamil

C. Increased effect of atropine on the AV node

D. Decreased inotropic effect of digitalis

11) BD is a 48-year-old female with a liver transplant who is receiving an immunosuppressive regimen consisting of tacrolimus and mycophenolate. She presents with fever and increased WBC after recently completing a course of antibiotics for a urinary tract infection. Empiric antibiotics are started to cover for bacterial, viral, and fungal infections. Which of the following statements is true?

A. Acyclovir will increase tubular secretion of mycophenolate and reduce concentrations

B. Fluconazole will decrease hepatic metabolism of mycophenolate and increase concentrations

C. Cefipime will interfere with tubular secretion of tacrolimus and increases concentrations

D. Fluconazole will inhibit hepatic metabolism of tacrolimus and increase concentrations

12) HR is a 57-year-old male with a kidney transplant who is diagnosed with posttransplant lymphoproliferative disease. His current immunosuppressant regimen consists of: tacrolimus 6 mg by mouth twice daily and sirolimus 3 mg by mouth daily. Which of the following changes should the clinician consider?

A. Increase sirolimus dose

B. Change sirolimus to mycophenolate

C. Decrease tacrolimus dose

D. Change tacrolimus to belatacept

13) Which of the following statements is true?

A. Tacrolimus increases MPA concentrations due to interference with enterohepatic recycling of MPAG

B. Allopurinol inhibits xanthine oxidase, the enzyme responsible for elimination of MPAG

C. Phenytoin decreases tacrolimus levels by inducing activity of CYP 3A4 enzymes

D. Antacids reduce cyclosporine levels by inhibiting GI absorption

14) VO is a 42-year-old female who is being discharged after receiving a liver transplant 7 days ago. Which of the following is *not* an appropriate monitoring plan for her?

A. Serum creatinine should be monitored once a month

B. Liver function tests should be monitored weekly

C. Complete blood counts should be monitored weekly

D. Lipid panels should be monitored every 3 months

15) Which of the following strategies is an appropriate approach to reduce morbidity associated with immunosuppression-related complications?

A. Administer valganciclovir to reduce the risk of cytomegalovirus postoperatively

B. ACE-inhibitors are the first-line agents to treat cyclosporine-induced hypertension

C. Statins should be avoided as treatment for sirolimus-induced hyperlipidemia

D. Insulin is the first-line approach to treating new-onset diabetes mellitus caused by tacrolimus

Chapter 71 - Osteoarthritis

1) Risk factors for the development of osteoarthritis (OA) include:

A. Smoking

B. Participation in running

C. Being underweight

D. Advanced age

E. B and D

2) Patient education for OA, such as programs in which volunteers regularly contact patients

A. Has not yet been demonstrated to provide benefit to OA patients

B. Is too expensive to recommend for general use by OA patients

C. Should emphasize the “wear and tear” nature of OA as part of the educational message

D. Has been shown to improve pain and functional status of OA patients

E. All of the above

3) MMPs (matrix metalloproteinases)

A. Are naturally occurring chemokines that work primarily by recruiting neutrophils and macrophages to the inflamed synovium

B. Help trigger degradation of articular cartilage by cleaving peptide bonds in proteoglycans

C. Are stimulated by TIMPs (tissue inhibitors of metalloproteinases)

D. Must be activated before they can ease the pain of OA

E. B and C

4) Which of the following are required for an accurate and appropriate diagnosis of OA?

A. Patient history and physical exam

B. Patient history, physical exam, and radiologic evaluation

C. Physical examination and magnetic resonance imaging

D. Patient history, physical exam, and positive response to pharmacologic treatment

E. Any of the above is accurate and appropriate

5) Acetaminophen

A. Is recommended as an appropriate initial treatment in OA

B. Should be given on a scheduled basis for optimal pain control

C. Can be associated with hepatotoxicity at doses below 4 g per day

D. Provides mild analgesia

E. All of the above

6) Traditional, nonselective NSAIDs

A. Block access of arachidonic acid to both COX-1 and COX-2 enzymes

B. Promote platelet aggregation through blockade of COX-2 activity

C. Promote prostaglandin and bicarbonate production in gastric mucosa through blockade of COX-2 activity

D. Counteract renal vasoconstriction by promoting formation of renal prostaglandins

E. Are antiinflammatory at low doses and analgesic at higher doses

7) NSAIDs:

A. Are associated with thousands of serious or life-threatening GI adverse events every year

B. Provide superior relief of OA pain in some individuals

C. Will usually produce symptoms of dyspepsia or abdominal discomfort as a prelude to serious GI adverse events

D. Should be consistently monitored by serum levels when used in antiinflammatory doses

E. A and B

8) NSAIDs:

A. Are recommended as an alternative to acetaminophen for controlling inflammation associated with OA

B. Provide pain relief by the inhibition of prostaglandins

C. Provide cardioprotective effects similar to aspirin

D. Increase renal blood flow, causing sodium and potassium excretion

E. B and C

9) Celecoxib, a COX-2 selective inhibitor:

A. Blocks the COX-2 enzyme with little or no inhibition of COX-1

B. Is more effective at relieving pain than nonselective NSAIDs

C. Is much safer to use in patients with compromised circulatory function

D. Carries a manufacturer's warning against use in sulfa allergic patients

E. A and D

10) Intraarticular corticosteroids:

A. Have no role in OA, as this disease does not have any inflammatory component

B. Are recommended as maintenance therapy for patients who cannot tolerate NSAIDs and who have severe OA

C. Can be administered up to 12 times per year for the treatment of severe OA pain

D. Are associated with hyperglycemia in patients without diabetes mellitus

E. Should not be used for the treatment of hip OA

11) Hyaluronate injectable material:

A. Is made using recombinant technology

B. Provides a long-term increase in viscosity of synovial fluid

C. Is a low-cost pharmacologic therapy

D. Is highly effective when compared to placebo vehicle injections

E. Is less effective than intraarticular corticosteroids

12) Recommended treatment options for OA patients who have failed acetaminophen include:

A. Nonselective NSAIDs used at analgesic doses, if the patient is not at high risk for GI bleeding

B. Nonselective NSAIDs with an H_2 antagonist to prevent GI bleeding in the high-risk patient

C. COX-2–selective inhibitors with sucralfate in the high-risk patient

D. COX-2–selective inhibitors with misoprostol in the high-risk patient

E. None of the above

13) Knee replacement surgery should be considered in the patient with OA if:

A. The patient prefers not to try oral medications such as acetaminophen

B. There is significant disability and interference with daily functioning

C. The patient refuses treatment with low-dose NSAIDs

D. The patient is at high risk for NSAID-related GI bleeding

E. The patient does not respond to topical therapy with NSAIDs

14) Topical capsaicin therapy for the treatment of OA pain:

A. Produces systemic adverse effects

B. Provides therapeutic results within 48 hours

C. Is most effective when used on an as-needed basis

D. Must be used four times daily for best results

E. Is most appropriate for the treatment of hand OA

15) A patient with a history of which of the following is best suited to opioid analgesic therapy for their OA symptoms?

A. Alcoholism

B. Small bowel obstruction

C. Traumatic fall on home stairs

D. Myocardial infarction

E. Poor adherence to medications

Chapter 72 - Rheumatoid Arthritis

1) Which of the following is *not* useful in evaluating therapeutic outcomes?

A. Reduction in rheumatoid factor blood tests

B. Radiographs of involved joints

C. Changes in duration of morning stiffness

D. Ability to perform usual daily tasks

2) Which of the following pharmacologic agents reduce rheumatoid arthritis symptoms but do *not* impede radiographic joint damage?

A. Indomethacin

B. Methotrexate

C. Prednisone

D. Etanercept

3) Monitoring of methotrexate therapy should include which of the following:

A. Complete blood count, AST or ALT, and albumin

B. Complete blood count and urinalysis

C. Eye examinations every 6 months

D. Complete blood count, creatinine, and glucose

4) Which of the following is an appropriate initial dosing regimen for methotrexate in an adult with rheumatoid arthritis?

A. 50 mg orally daily

B. 50 mg orally once weekly

C. 7.5 mg orally daily

D. 7.5 mg orally once weekly

5) Leflunomide monitoring would include all of the following *except*:

A. Pregnancy

B. Complete blood count

C. ALT

D. Serum creatinine

6) If leflunomide needs to be rapidly eliminated from the body, which of the following drugs may be used to assist?

A. Cholestyramine

B. Sevelamer

C. Hydrochlorothiazide

D. Activated charcoal

7) Which of the following is true regarding sulfasalazine therapy?

A. Eye examinations should be done every 6 months to assess for visual changes

B. Therapy should be discontinued if urine and skin turn a yellow-orange color

C. Administration with antibiotics may decrease sulfasalazine absorption

D. Administration with iron supplements increase sulfasalazine absorption

8) Black box warnings for tofacitinib include which of the following?

A. Liver failure

B. Serious infection

C. Elevated lipids

D. Tendon rupture

9) Which of the following biologic response modifiers reduces activity of interleukin-6?

A. Etanercept

B. Tocilizumab

C. Abatacept

D. Anakinra

10) To prevent the development of antibodies, it is recommended that infliximab be given with which of the following drugs?

A. Cyclosporine

B. Prednisone

C. Methotrexate

D. Adalimumab

11) Which of the following is true of rituximab therapy?

A. Methylprednisolone is used to help prevent infusion reactions

B. It exerts its effect by inhibiting T cells and B cells

C. It is given as a single infusion and repeated with reactivation of the disease

D. It is given as two infusions given 2 weeks apart and repeated every 8 months

12) Adverse reactions to tocilizumab include all of the following *except*:

A. Infusion-related reactions

B. Elevated liver functions

C. Multiple sclerosis-like illness

D. Elevated plasma lipids

13) An intra-articular injection of long-acting corticosteroids can be of use in:

A. Generalized flares of joint symptoms

B. Patients who have rheumatoid nodules

C. Patients with Cushing's syndrome and rheumatoid arthritis

D. Patients with one or a few active, swollen joints

14) MB is a 36-year-old female who was diagnosed with rheumatoid arthritis 2 years ago. Today, she returns to the clinic with active rheumatoid arthritis with 8 swollen joints after 6 months of methotrexate monotherapy. A decision is made to discontinue methotrexate and initiate etanercept. Which of the following needs to be completed prior to starting etanercept?

A. TB skin test, assess liver and kidney function, discuss costs

B. TB skin test, pregnancy test, administer needed attenuated vaccines

C. Pregnancy test, heart failure screening, assess liver function

D. TB skin test, assess for infections, administer needed live vaccines

15) MB (from Question #14) did not receive adequate benefit from etanercept monotherapy. She continues to have active rheumatoid arthritis with pain and swelling of 20 joints. Her morning stiffness lasts more than 6 hours. Which of the following options would provide the best chance of achieving disease control in this patient?

A. Add adalimumab

B. Add methotrexate

C. Switch to sulfasalazine

D. Switch to leflunomide

Chapter 73 - Osteoporosis and Other Metabolic Bone Diseases

1) Which statement is *true* about bone physiology and pathophysiology?

A. Estrogen is important in women and men to prevent bone resorption.

B. Bone loss due to aging is predominantly from increased osteoclast apoptosis.

C. Both osteoprotegerin and denosumab prevent RANKL from binding to the Wnt signaling pathway.

D. Sclerostin inhibits cathepsin K, thereby decreasing bone resorption.

2) FRAX should be used to calculate fracture risk in which patient to determine whether there is a need for therapy?

A. A 70-year-old woman currently on alendronate therapy

B. A postmenopausal woman with a T-score of the femoral neck of –3.0

C. A postmenopausal woman currently completing teriparatide

D. A 66-year-old woman with a T-score of the femoral neck of –2.0

E. A 70-year-old man with a T-score of the spine of –3.0 and a low-trauma vertebral fracture

3) A 66-year-old woman with a femoral neck T-score of –0.5 and a spine T-score of –0.9 asks for recommendations for calcium and vitamin D. According to the National Osteoporosis Foundation, which daily intake do you recommend that she achieve?

A. Calcium 600 mg and vitamin D 600 units

B. Calcium 600 mg and vitamin D 800 units

C. Calcium 1,200 mg and vitamin D 600 units

D. Calcium 1,200 mg and vitamin D 1,000 units

E. Calcium 1,500 mg and vitamin D 2,000 units

4) A patient's DXA T-scores are femoral neck (right) –2.8, femoral neck (left) –2.3, lumbar spine –2.2. How would you interpret these DXA results?

A. Normal bone density

B. Low bone density (osteopenia)

C. Osteoporosis

5) In a woman with which of the following scores should bisphosphonate therapy be recommended?

A. T-score lumbar spine of 0.2

B. T-score lumbar spine of –0.9

C. T-score lumbar spine of –2.0, T-score femoral neck of –2.0 and 10-year probability of hip fracture of 2%

D. T-score femoral neck of –2.2 and 10-year probability of hip fracture of 5%

E. T-score femoral neck of –2.4 and 10-year probability of major osteoporotic fracture of 15%

6) In a 78-year-old woman, a vertebral fracture assessment reveals a spinal fracture. Her lowest T-score is –2.1 at the left femoral neck. She denies any pain. Which agent should be recommended for treatment?

A. Ibandronate

B. Intranasal calcitonin

C. Raloxifene

D. Risedronate

E. Teriparatide

7) A patient has difficulty swallowing and is currently confined to bed. Which agent represents first-line therapy for osteoporosis in this patient?

A. Subcutaneous teriparatide

B. Subcutaneous denosumab

C. Intranasal calcitonin

D. Effervescent alendronate

8) Which of the following should be completed before initiating therapy with denosumab?

A. Correct any underlying hypocalcemia prior to administration.

B. Educate the patient on the need to remain upright after administration.

C. Ensure that the patient is aware the drug cannot be used for more than 2 years.

D. Determine the patient’s thromboembolic risk.

9) Which instruction for administration should be relayed to a patient on ibandronate?

A. Take 30 minutes after breakfast.

B. Remain upright for 15 minutes after taking.

C. Take with at least 6 ounces (180 mL) of water.

D. Take with calcium and vitamin D tablet

10) A 65-year-old woman is taking osteoporosis prescription medication. She has high blood pressure, hypercholesterolemia, and diabetes type 2. After using motivational interviewing, you find she cannot increase her diet to achieve recommended calcium and vitamin D daily allowances. Her current intake of dietary calcium is 700 mg and vitamin D 100 units. Which supplement recommendation is best in light of cardiovascular concerns?

A. Calcium carbonate 625 mg plus 400 units vitamin D combination tablet twice daily

B. Calcium carbonate 500 mg daily and vitamin D 800 units daily

C. Calcium carbonate 1,200 mg daily and vitamin D 400 units daily

D. Two multivitamins daily

11) How does zoledronic acid work?

A. Inhibits osteoblast secretion of RANKL

B. Inhibits release of bone destroying enzymes

C. Inhibits osteoclast binding to the bone

D. Inhibits osteoclast maturation and function

E. Increases Wnt signaling pathway to increase osteoblasts and bone formation

12) A 70-year-old man with symptomatic hypogonadism is diagnosed with osteoporosis. He is thought to be at high risk for hip fracture. Which of the following is the best initial treatment?

A. Alendronate and testosterone

B. Ibandronate alone

C. Testosterone alone

D. Calcitonin and testosterone

13) You identify a woman who has not refilled her alendronate prescription for the last 3 months. She tells you she is concerned about getting osteonecrosis of the jaw (ONJ). Your response is?

A. There is no risk of ONJ with oral osteoporosis medications.

B. ONJ only happens in patients with cancer.

C. Because of the risk of ONJ, you call her doctor to get it switched to raloxifene.

D. ONJ is very rare and she is more likely to get a hip fracture.

14) Which of the following pairs correctly matches the medication with its *most common* adverse effects?

A. Raloxifene—hot flushes, blood clots

B. Calcitonin—rhinitis, epistaxis, atypical fractures

C. Denosumab—increased cholesterol, serious infections, osteonecrosis of the jaw

D. Bisphosphonates—nausea, abdominal pain, osteonecrosis of the jaw

15) Ms. Martinez, a 40-year-old woman with a long-standing history of inflammatory bowel disease for which she takes glucocorticoids on and off, is discussing the results of her DXA examination—Z-score lumbar spine –2.8 and femoral neck (right) –2.5. Besides a bone-healthy lifestyle, what should she begin today?

A. All medications are contraindicated, so she should try running every day.

B. Data support bisphosphonates in premenopausal women, but concerns exist about the effects on a fetus.

C. Phytoestrogens can prevent osteoporosis and decrease fracture risk.

D. If she uses birth control, she could use a bisphosphonate, although few data exist about their long-term safety.

16) Mr. Jones, a 60-year-old man who just started treatment for prostate cancer, wants to know why his doctor wants to start an osteoporosis medication. Which of the following is the *best* response?

A. Osteoporosis medications destroy cancer cells.

B. Cancer and some chemotherapy cause bone loss and fractures that can be prevented with these medications.

C. Because of his age, Mr. Jones should take these medications to prevent osteoporosis.

D. The osteoporosis medication is not needed.

Chapter 74 - Gout and Hyperuricemia

1) Which of the following is *not* a clinical manifestation of hyperuricemia?

A. Acute gouty arthritis

B. Nephrolithiasis

C. Osteoarthritis

D. Gouty nephropathy

E. Tophaceous gout

2) Hyperuricemia may result from the following mechanisms *except*

A. Increased phosphoribosyl pyrophosphate (PRPP) synthetase activity

B. Deficiency of hypoxanthine guanine phosphoribosyl transferase (HGPRT)

C. Underexcretion of uric acid

D. Myeloproliferative disorders

E. Decreased purine metabolism

3) Which of the following is the most likely site for acute monoarticular gouty arthritis?

A. First metatarsophalangeal joint

B. Instep

C. Ankle

D. Heel

E. Knee

4) All of the following are risk factors for uric acid nephrolithiasis *except*

A. Hyperuricemia

B. Alkaline urine

C. Highly concentrated urine

D. Increased urinary excretion of uric acid

E. Uricosuric therapy

5) Which of the following is *not* associated with chronic gouty nephropathy?

A. Proteinuria

B. Decreases in the kidney's ability to concentrate urine

C. Hypertension

D. Nephrosclerosis

E. All of the above are associated with chronic gout nephropathy

6) Which of the following is *false* regarding the epidemiology of gout?

A. Prevalence increases with age

B. Excessive alcohol intake is a risk factor

C. Obesity is a risk factor for gout

D. Women are affected three times more often than men

E. Family history of gout is a risk factor

7) Serum urate concentrations are directly correlated with all of the following *except*

A. Alcohol intake

B. Body weight

C. Age

D. Serum cholesterol

E. Blood pressure

8) Which of the following is the most appropriate initial dosing strategy for colchicine when used to treat an acute gout flare in patient with normal renal function?

A. 0.6 mg one dose

B. 0.6 mg hourly until symptoms subside

C. 1.2 mg initially, followed by 0.6 mg 1 hour later

D. 1.2 mg hourly until symptoms subside

E. 0.6 mg initially, followed by 1.2 mg 1 hour later

9) Colchicine is associated with all of the following adverse effects *except*

A. Axonal neuromyopathy

B. Constipation

C. Renal toxicity

D. Hepatotoxicity

E. Bone marrow toxicity

10) The preferred treatment option for a patient with acute gouty polyarticular arthritis who presents 36 hours after the onset of pain is

A. Naproxen

B. Prednisone

C. Colchicine

D. A or B would be appropriate

E. B or C would be appropriate

11) Which of the following is *not* recommended in the acute management of uric acid nephrolithiasis?

A. Maintain a 2- to 3-L 24-hour urine volume

B. Sodium bicarbonate

C. Potassium citrate

D. Acetazolamide

E. Potassium bicarbonate

12) Probenecid should be avoided in patients with all of the following *except*

A. Impaired renal function

B. History of uric acid kidney stones

C. Hypersensitivity to probenecid

D. Current high-dose salicylate therapy

E. Underexcretion of uric acid

13) Which of the following statements is *false* regarding the use of xanthine oxidase inhibitors in the management of gout?

A. They should be given twice a day

B. You may start xanthine oxidase inhibitor therapy during an acute gout attack if appropriate antiinflammatory prophylaxis has been initiated

C. Adjust the dose until the serum urate concentration is <6 mg/dL (<357 µmol/L)

D. They are the drugs of choice for patients with a history of urinary stones

E. Coadminister colchicine or an NSAID during initiation of xanthine oxidase therapy

14) Which of the following is *false* regarding asymptomatic hyperuricemia?

A. There is clear evidence that treatment of asymptomatic hyperuricemia is necessary to prevent acute gout attacks

B. It may be caused by diuretic therapy

C. Lifestyle changes, such as reduction in alcohol consumption, may correct elevated uric acid levels in patients with asymptomatic hyperuricemia

D. It has been linked to increased cardiovascular risk

E. It may be caused by nicotinic acid therapy

15) An acceptable treatment option for a patient with polyarticular acute gouty arthritis of 3 days duration who cannot tolerate an NSAID is

A. IV colchicine

B. Corticosteroid

C. Oral colchicine

D. Probenecid

E. Sulfinpyrazone

Chapter 75 - Glaucoma

1) Assessment of primary open-angle glaucoma includes:

A. Increased intraocular pressure

B. Loss of visual fields

C. Glaucomatous changes of the optic disc and nerve fiber layer

D. B and C

E. A, B, and C

2) The objective of drug therapy of open-angle glaucoma is to:

A. Reduce intraocular pressure to the normal range

B. Restore visual field to normal

C. Halt progression of visual field loss

D. A and C

E. A, B, and C

3) Aqueous humor is produced by the:

A. Trabecular meshwork

B. Iris

C. Schlemm's canal

D. Ciliary body

E. None of the above

4) Increased intraocular pressure observed in the majority of primary open-angle glaucoma is the result of:

A. Increased aqueous humor production

B. Increased resistance to flow through the pupil

C. Blockage of the trabecular meshwork by the iris

D. Increased resistance to outflow through the trabecular meshwork

E. None of the above

5) Drug therapies used in glaucoma reduce intraocular pressure by:

A. Reduction of aqueous production by the ciliary body

B. Increased outflow of aqueous humor through the trabecular meshwork and/or uveoscleral pathway

C. Induction of miosis

D. A and B only

E. A and C only

6) Glaucoma medications that reduce intraocular pressure by increasing uveoscleral outflow include:

A. β-blockers and carbonic anhydrase inhibitors

B. Cholinergics

C. Prostaglandin analogs and α_2 agonists

D. A and C

E. A and B

7) First-line agents for the treatment of open-angle glaucoma usually include:

A. Cholinesterase inhibitors

B. Combination of timolol and brimonidine

C. Prostaglandin analogs

D. Oral carbonic anhydrase inhibitors

E. Pilocarpine

8) Use of nasolacrimal occlusion or eyelid closure following application of topical glaucoma medications is potentially beneficial for:

A. Only patients experiencing inadequate response to therapy

B. Only patients experiencing systemic adverse effects

C. All patients

D. Only patients with significant local side effects

E. Only patients who have difficulty administering medications

9) Side effects associated with prostaglandin F2a analogs include:

A. Pigmentary changes of the iris

B. Miosis

C. Bronchospasm

D. Decreased blood pressure

E. A and D

10) Appropriate therapeutic approaches to a 67-year-old white female with no family history of glaucoma and an intraocular pressure of 26 mm Hg in both eyes with normal visual fields and optic disc findings include:

A. Initiate therapy with pilocarpine 4% one drop in each eye four times daily

B. Trabeculectomy

C. Initiate therapy with 0.5% timolol one drop in each eye twice daily

D. Adjunctive therapy to reduce intraocular pressure aggressively

E. Monitor for signs of glaucoma only after assessing glaucoma risk factors

11) Differences between available ophthalmic β-blocking agents are:

A. β1-specificity

B. Intrinsic sympathomimetic activity

C. Available dosage forms

D. Frequency of local and systemic side effects

E. All of the above

12) Side effects associated with ophthalmic β-blockers include:

A. Reduced exercise capacity

B. Bronchospasm

C. Heart block

D. Psychosis

E. All of the above

13) Topical carbonic anhydrase inhibitors reduce intraocular pressure by:

A. Increased trabecular outflow

B. Increased uveoscleral outflow

C. Induction of miosis

D. Reduced aqueous production

E. Increased serum osmolarity

14) Caution should be used when administering the following medications to patients being treated for open-angle glaucoma:

A. Systemic agents with anticholinergic effects

B. Topical parasympathomimetics

C. Topical corticosteroids

D. Systemic monoamine oxidase inhibitors

E. None of the above

15) The following statement(s) regarding the drug therapy of open-angle glaucoma is (are) true:

A. Reduction of a high intraocular pressure in a patient with glaucoma to normal always results in a halt of visual field loss

B. Patients with normal intraocular pressures and with early glaucomatous field loss may not be left untreated and should be observed for disease progression

C. Reduction of intraocular pressure below normal provides no benefit to patients with glaucoma and normal intraocular pressure

D. B and C only

E. A and C only

Chapter 76 - Allergic Rhinitis

1) Which of the following would *not* be considered a predisposing factor to the development of allergic rhinitis in a child?

A. Parents with a history of cigarette smoking

B. Early childhood spent living in an urban environment

C. One parent with a history of allergic rhinitis

D. History of eczema

E. High socioeconomic class

2) Inflammatory mediators produce all of the following in the nose *except*:

A. Decreased vascular permeability

B. Rhinorrhea

C. Nasal congestion

D. Sneezing

E. Vasodilation

3) Which of the following statements are true regarding complications of allergic rhinitis?

A. Nose bleeds can result from mucosal hyperemia and inflammation

B. The relationship between allergic rhinitis and asthma is stronger with seasonal allergic rhinitis compared to perennial

C. Allergic shiners are the result of venous pooling under the eyes

D. All of the above are true

E. Only A and C are true

4) Prior to skin testing, nonsedating antihistamines should be stopped for:

A. 48 hours

B. 72 hours

C. 5 days

D. 10 days

E. 2 weeks

5) Each of the following statements about allergens is true *except*:

A. Cross-allergenicity is common with pollen from sycamore, cedar, and birch trees

B. Cross-allergenicity is common with pollen from Kentucky bluegrass, fescue, and timothy grass

C. Energy efficient homes contain higher levels of dust mite fecal proteins

D. Mold spores are known to cause perennial and seasonal allergic rhinitis

6) All of the following are excellent examples of successful avoidance techniques that should be discussed with patients *except*:

A. Replace wall-to-wall carpeting with washable area rugs

B. Reduce the humidity in the home to less than 50%

C. Install HEPA filters throughout the home

D. Regularly perform carpet cleaning with products containing acaricides

E. Wear filter masks when performing lawn and gardening chores

7) Peripherally selective antihistamines have the following advantage(s) over nonselective agents:

A. Unlike nonselective agents, they are competitive antagonists to histamine

B. Their antiinflammatory action has not been demonstrated with nonselective agents

C. They may cause more sedation making them more useful in patients whose allergies keep them awake at night

D. A and B are both advantages

E. None of the above are advantages

8) The following are true of antihistamine therapy *except*:

A. If a dose is missed, the patient should double the next dose only if using a peripherally selective agent

B. Patients must be counseled on the potential for drowsiness, even with the newer nonsedating agents

C. Patients with enlarged prostates may not be good candidates for antihistamine therapy

D. If a patient receiving diphenhydramine develops tolerance to the therapeutic effect, changing to an antihistamine in a different chemical class may be effective

9) Patients experiencing allergic conjunctivitis while receiving nasal steroids may benefit from having what drug added to their regimen?

A. Azelastine

B. Cromolyn sodium

C. Levocarbastine

D. An intranasal decongestant

E. A systemic decongestant

10) Rhinitis medicamentosa may be treated successfully with the following agent:

A. Diphenhydramine

B. Cromolyn sodium

C. Fluticasone

D. Oxymetolazone

E. Clemastine

11) The following statements regarding systemic decongestants are true *except*:

A. Development of rhinitis medicamentosa is not a problem

B. Ephedrine is most commonly used because it produces no measurable change in blood pressure

C. Action typically lasts longer than topical decongestants

D. They are less effective for immediate relief of symptoms compared to topical decongestants

12) Intranasal beclomethasone:

A. Is most effective in seasonal allergic rhinitis if therapy is started at the onset of the patient's allergic symptoms

B. Causes significant HPA suppression, so it should not be used in preteens

C. May provide added benefit in asthma patients with allergic rhinitis by providing some protection against exacerbations

D. Causes drowsiness at approximately one-half the rate seen with diphenhydramine

13) Cromolyn sodium:

A. Administered once daily is effective for perennial allergic rhinitis

B. Has as its major side effects, sneezing, nasal stinging, and anticholinergic side effects

C. Has an onset of symptom relief of about 2 to 4 days

D. Should be begun just before the start of the patient's allergy season

14) The following statements about immunotherapy are true *except*:

A. Candidates should have a history of symptoms controlled by antihistamines and/or nasal steroids

B. It is a slow, gradual process

C. Effectiveness has been demonstrated in clinical trials using pollen extracts

D. Three years of immunotherapy may be sufficient to give some patients lasting benefits

15) Key elements of evaluation of the therapeutic outcome of a patient with allergic rhinitis include:

A. The effect of the disease on the patient's life

B. The efficacy of the treatment regimen

C. The tolerability of the treatment regimen

D. The patient's satisfaction of the treatment regimen

E. All of the above

Chapter 77 - Acne Vulgaris

1) Select the *true* statement regarding the epidemiology of acne vulgaris.

A. Males present with an earlier onset in puberty.

B. Females present with more severe signs and symptoms in puberty.

C. Males have more severe symptoms in adulthood.

D. There are no gender differences in acne prevalence.

E. The lifetime prevalence of acne is 65%.

2) Which statement is *true* regarding the etiology of acne vulgaris?

A. Acne is generally worse in the summer because of aggravation by ultraviolet light.

B. Aggravation of acne through stress is a myth.

C. Violinists may experience acne lesions due to occlusion where the instrument rests.

D. Dietary influences do not effect the expression of acne.

E. Acne is not more serious if there is an hereditary link.

3) Select the most important of four pathophysiologic mechanisms underlying acne vulgaris.

A. Increased follicular keratinization forming a microcomedone

B. Increased production of sebum

C. Bacterial lipolysis of sebum triglycerides to free fatty acids

D. Inflammation

4) Select the *true* statement regarding the clinical presentation of acne vulgaris.

A. The open comedone is the first clinically visible lesion of acne.

B. A pustule is usually greater than 5 mm in diameter.

C. Nodules usually resolve within a few days without scarring.

D. Cysts are suppurative nodules that may extend down to fat.

E. The closed comedone is very stable and may persist for a long time.

5) Which of the following factors is not an important factor in the differential diagnosis of acne vulgaris?

A. Betamethasone therapy

B. Lithium therapy

C. Association with spicy food

D. Polycystic ovary syndrome

E. Vitamin B_{12} deficiency

6) Which of the following is not a basic goal of treatment?

A. Alleviation of symptoms by reducing the number and severity of lesions

B. Reversing progression of signs and symptoms

C. Limiting acne duration and recurrence

D. Prevention of long-term disfigurement associated with scarring and hyperpigmentation

E. Avoidance of psychological suffering

7) Which fact is *false* about comedone extraction?

A. Fewer than 10% of comedone extractions are a complete success.

B. Comedones may recur between 25 and 50 days following expression.

C. Extractions may prevent progression to inflammation.

D. Extractions have been widely tested in clinical trials.

E. Extractions result in immediate cosmetic improvement.

8) To prevent cosmetic acne, patients should:

A. Avoid self care and use cosmetics applied during a beauty salon facial.

B. Select “noncomedogenic” products.

C. Select water-based products.

D. Use a sunscreen containing benzophenone.

E. Avoid hairspray.

9) For mild to moderate acne with predominantly noninflammatory lesions (comedones), active agents of first choice include:

A. Retinoic acid, topical antibiotics, or benzoyl peroxide

B. Retinoic acid, topical or oral antibiotics, or benzoyl peroxide

C. Retinoic acid, salicylic acid, or benzoyl peroxide

D. Tretinoin, adapalene, or benzoyl peroxide

10) For severe acne with inflammatory lesions (papules, pustules), extensive nodules and cysts, and scars, the most appropriate drug regimens should include:

A. Tretinoin, adapalene, or tazarotene

B. Tretinoin or adapalene and isotretinoin

C. Benzoyl peroxide, retinoic acid, or adapalene

D. Isotretinoin or topical or oral antibiotics

11) Treatment of mild scarring has best results with

A. Dermabrasion or collagen implants

B. Chemical peels (e.g., 70% glycolic acid)

C. Laser therapy

D. Nonprescription α-hydroxy acids

E. Local excision

12) Comparisons of salicylic acid and benzoyl peroxide have shown

A. Salicylic acid to be equal or slightly inferior to benzoyl peroxide in reducing number of inflammatory lesions

B. The two products have similar efficacy

C. Benzoyl peroxide could be superior in acting against later steps

D. The effect of different bases is not relevant

13) As a group, the topical retinoids are:

A. Useful in the management of both comedonal and inflammatory acne

B. Ranked in order of peeling efficacy as tretinoin < adapalene < tazarotene

C. Decrease production of sebum and are thus useful for severe acne

D. Are not combined with antibiotics because of increased toxicity

E. Are contraindicated in cases of postinflammatory hyperpigmentation

14) Patients with acne who wish to increase ultraviolet light exposure to improve symptoms should use the following therapies with caution:

A. Doxycycline and minocycline

B. Minocycline and benzoyl peroxide

C. Doxycycline and retinoic acid

D. Retinoic acid and benzoyl peroxide

E. Topical clindamycin and minocycline

15) Choose the most correct statement:

A. Azelaic acid therapy should include monitoring for hyperpigmentation.

B. Laboratory monitoring during isotretinoin therapy need not include triglycerides or complete blood counts.

C. Patients on isotretinoin therapy should be monitored for signs of depression.

D. Control of acne is reflected in a reduction of lesion counts by 50% decrease within 2 to 4 weeks.

E. Comedones should resolve within a few weeks.

Chapter 78 - Psoriasis

1) The overall incidence of psoriasis in North America and Europe is approximately

A. 0.2%

B. 2%

C. 12%

D. 20%

2) Which of the following drugs may precipitate new-onset psoriasis?

A. Corticosteroids

B. Azathioprine

C. β-adrenergic blocker

D. Thiazide diuretics

3) Which of the following drugs may exacerbate preexisting psoriasis?

A. β-adrenergic blocker

B. Lithium

C. Nonsteroidal antiinflammatory drugs

D. All of the above

4) Comorbidities associated with psoriasis include all of the following except

A. Hyperlipidemia

B. Crohn disease

C. Multiple sclerosis

D. Multiple myeloma

5) A 43-year-old white man has been diagnosed with mild plaque psoriasis. Presenting clinical signs and symptoms may include all of the following except

A. Hypopigmentation

B. Pruritus

C. Erythema

D. Silvery scales on lesions

6) Appropriate nonpharmacologic therapy for the patient in Question 5 includes all of the following except

A. Moisturizer applied ad lib

B. Oatmeal baths

C. Tanning beds

D. Stress management clinics

7) Initial pharmacologic therapy for the patient in Question 5 should be

A. Betamethasone dipropionate 0.05% ointment for 2 months

B. Calcipotriol 50 mcg/g cream for 2 months

C. Methotrexate 5 mg/week for 2 months

D. PUVA treatments for 2 months

8) Adverse effects of topical corticosteroids include all of the following except

A. Hyperpigmentation

B. Telangiectases

C. HPA-axis suppression

D. Perioral dermatitis

9) SCAT therapy refers to

A. Steroid plus calcipotriol use

B. Steroid plus coal tar use

C. Anthralin use

D. Tazarotene use

10) RE-PUVA refers to

A. Multiple PUVA treatment courses

B. Acitretin used together with PUVA

C. Psoralens bath plus UVA

D. Methotrexate used together with PUVA

11) Moderate-to-severe psoriatic lesions in a 33-year-old white woman fail to clear with topical therapy or NB-UVB. The NB-UVB treatments were continued and acitretin added. Appropriate counseling for this patient includes all of the following except

A. She must be on effective birth control for the duration of acitretin therapy

B. She must be on effective birth control for 3 years after discontinuing acitretin

C. She must not donate blood

D. She must not have more than two alcoholic drinks per day

12) Adverse effects of cyclosporine include all of the following except

A. Hepatotoxicity

B. Hypertriglyceridemia

C. Hypertension

D. Nephrotoxicity

13) Which of the following drugs can reduce serum cyclosporine concentrations?

A. Oral contraceptives

B. Verapamil

C. Valproic acid

D. Clarithromycin

14) Which of the following drugs is not a TNF-α inhibitor?

A. Etanercept

B. Alefacept

C. Adalimumab

D. Infliximab

15) Joanne is a 25-year-old woman in the first trimester of pregnancy. She has severe plaque psoriasis that did not improve when she became pregnant. In fact, the stress of pregnancy has resulted in a flare-up of her psoriasis. An appropriate treatment for Joanne's psoriasis would be

A. Methotrexate

B. NB-UVB

C. Topical tazarotene

D. Acitretin

Chapter 79 - Atopic Dermatitis

1) Baby Amy Tinker is a 7-month-old infant who has been diagnosed with atopic dermatitis. Clinical signs and symptoms she presented with may include all the following except:

A. Pruritus

B. Hypopigmentation

C. Facial rash

D. Urticaria

2) Appropriate nonpharmacologic therapy for Amy includes all of the following except:

A. Moisturizer applied liberally as needed

B. Bathing five times a day

C. Keep humidity at or above 50%

D. Keep Amy cool—avoid situations of overheating

3) Initial pharmacologic therapy for Amy should be:

A. Topical corticosteroid

B. Topical pimecrolimus

C. Oral prednisone

D. Phototherapy with UVB

4) Lichenification implies all of the following except:

A. Repeated rubbing and scratching has occurred

B. Thick, leathery skin is present

C. A secondary bacterial infection has developed

D. Flexural folds of the extremities are probably involved

5) The defect thought to play a key role in atopic dermatitis is:

A. Mutations in the gene for filaggrin

B. Absence of the epidermal growth hormone

C. Presence of the Philadelphia chromosome

D. Abnormal cystic fibrosis transmembrane conductance protein

6) An immune system change associated with atopic dermatitis is:

A. Reduced serum IgE

B. Increased interleukin-12

C. Increased Th2 cell activity

D. Increased blood neutrophils

7) Miss Susanne Brown is a 15-year-old girl with atopic dermatitis who has multiple food allergies. The most allergenic foods that Susanne might be allergic to would include all of the following except:

A. Eggs

B. Milk

C. Yogurt

D. Soy

8) Susanne has yellow crusting lesions on her skin. They have been diagnosed as a bacterial infection. The most likely organism is:

A. *Staphylococcus aureus*

B. *Pseudomonas aeruginosa*

C. *Streptococcus viridans*

D. *Xenotrophomonas maltophilia*

9) Susanne has required pimecrolimus 1% cream during her flare-ups. Appropriate counseling for Susanne would include:

A. Apply the cream only on lichenified areas

B. Use the cream three to four times a day

C. Burning sensation is unlikely

D. Wear a sunscreen with SPF 30 or higher

10) The following treatment alternative would be preferred in a pregnant patient with atopic dermatitis:

A. Topical corticosteroid

B. Oral cyclosporine

C. Topical crude coal tar

D. Phototherapy with PUVA

11) The most effective type of phototherapy for atopic dermatitis is:

A. Broadband UVB

B. Narrowband UVB

C. PUVA

D. Low-dose UVA

12) Potential concerns with phototherapy include all of the following except:

A. Photoaging

B. Sunburn

C. Squamous cell carcinoma

D. Skin atrophy

13) Potential concerns with oral cyclosporine include all of the following except:

A. Hypertension

B. Nephrotoxicity

C. Hepatotoxicity

D. Interaction with grapefruit juice

14) Ultrahigh and high potency topical corticosteroids include all of the following except:

A. Betamethasone valerate 0.1% cream

B. Betamethasone dipropionate 0.05% ointment

C. Clobetasone propionate 0.05% cream

D. Diflorasone diacetate 0.05% ointment

15) Appropriate use of oral prednisone for atopic dermatitis includes all of the following except:

A. For severe, recalcitrant, chronic atopic dermatitis

B. For rapid relief of severe refractory disease while transitioning to other therapies

C. Discontinue abruptly after a short 5-day course

D. Provide intensified skin care with topical corticosteroids and moisturizers

Chapter 80 - Anemias

1) Classification of anemias is *not* based on:

A. Pathophysiology

B. Morphology

C. RBC indices

D. Etiology

E. Microscopic evaluation

2) Stimulation of erythropoiesis

A. Is due to a decrease in tissue oxygen levels

B. Results in decreased release of reticulocytes from the bone marrow

C. Is due to an increase in tissue oxygen levels

D. Is due to rising levels of erythropoietin from the liver

E. Is dependent on cytokines in the bone marrow

3) Serum iron levels in iron deficiency anemia:

A. May remain within the normal range

B. May have a 20% to 30% diurnal variation

C. Reflect the concentration of iron bound to transferrin

D. All of the above

E. None of the above

4) Iron is *best* absorbed:

A. From vegetables

B. With concurrent tea administration

C. In the ferrous form

D. In an alkaline environment

E. In a sustained release preparation

5) Which one of the following is *correct* regarding therapeutic doses of oral iron?

A. The enteric formulation results in increased iron absorption

B. Reticulocytosis occurs within 7 days after initiation of therapy

C. Iron therapy should be continued for 1 week of therapy and then discontinued

D. 10 mg of elemental iron daily is the general requirement

E. Oral iron should preferably be administered in a single dose with food

6) Which one of the following statements is *incorrect*?

A. A 325-mg tablet of ferrous sulfate contains 65 mg of elemental iron

B. A 300-mg tablet of ferrous gluconate contains 35 mg of elemental iron

C. A 325-mg tablet of ferrous sulfate contains 35 mg of elemental iron

D. A 100-mg tablet of ferrous fumarate contains 33 mg of elemental iron

7) Parenteral iron therapy:

A. Is best administered IV rather than IM

B. Should not be administered at a rate greater than 1 mg/min

C. Should be given initially as a loading dose

D. Requires concurrent erythropoietin therapy

E. Should be given if Hgb does not increase within 7 days of oral iron therapy initiation

8) Select the answer that is *clearly diagnostic* of vitamin B_{12} deficiency anemia.

A. Vitamin B_{12} < 150 pg/mL, peripheral neuropathies, dementia, hypersegmented neutrophils

B. Vitamin B_{12} < 200 pg/mL in a patient on oral contraceptives

C. Vitamin B_{12} < 250 pg/mL in a cancer patient with paresthesias

D. Vitamin B_{12} < 300 pg/mL in the third trimester of pregnancy

9) Which one of the following is *correct* regarding the treatment of vitamin B12 deficiency?

A. Neurological manifestations are reversible irregardless of the length of vitamin B_{12} deficiency

B. Good sources of vitamin B_{12} include green leafy vegetables

C. Vitamin B_{12} given via nasal spray is only appropriate for maintenance therapy

D. Oral replacement therapy cannot be utilized if a patient lacks intrinsic factor

10) Which one of the following is *correct* regarding folic acid deficiency anemia?

A. Folate is synthesized in the human body

B. Ingestion of alcohol interferes with the absorption of folate

C. Folic acid deficiency anemia results in neurologic manifestations

D. Supplementation with folic acid 1 mcg daily will replenish folate stores

E. Serum concentrations of methylmalonic acid and homocysteine are elevated

11) Patients with anemia of chronic disease

A. Have decreased levels of iron in the bone marrow

B. Can be clearly identified from a review of laboratory values

C. Have increased total iron binding capacity

D. Respond best to oral iron therapy during inflammation

E. May have a normal ferritin

12) Which one of the following is *incorrect* regarding anemia of critical illness?

A. A blunting of the erythropoietic response is evidenced

B. Supplemental iron in the form of oral or parenteral therapy is often necessary

C. The role of administering erythropoietin in critically ill patients is not clearly defined.

D. Transfusions are the best treatment option as they are always beneficial

13) Which one of the following statements is *incorrect* regarding adherence to anemia therapy?

A. Patients may cease taking oral iron therapy due to concerns regarding the development of dark stools

B. Oral iron therapy may result in diarrhea or constipation

C. Patients may be nonadherent to parenteral routes of vitamin B_{12} supplementation due to fear of injections

D. Combination iron products containing stool softeners are beneficial to avoid constipation

Chapter 81 - Coagulation Disorders

1) All of the following are potential risks for plasma-derived factor concentrates, except:

A. HIV contamination

B. Hepatitis contamination

C. Development of factor inhibitor

D. Renal toxicity

E. Allergic reaction

2) The dose of recombinant factor IX concentrate (BeneFix) for an 8-year-old male who weighs 25 kg to target a 50% correction is:

A. 2,000 units

B. 1,750 units

C. 1,250 units

D. 1,000 units

E. 625 units

3) A potential advantage to using recombinant factor concentrate instead of plasma-derived product is:

A. Decreased risk of viral contamination

B. Decreased risk of inhibitor development

C. Increased efficacy

D. Easier administration

E. Decreased cost

4) Which of the following is not an appropriate choice for the acute treatment of a patient with hemophilia A who is bleeding and has a high-titer inhibitor?

A. Cyclophosphamide

B. Factor VIIa concentrate

C. Prothrombin complex concentrates (PCCs)

D. Porcine factor VIII

E. Activated prothrombin complex concentrates (aPCCs)

5) When counseling a patient on potential side effects of desmopressin, you should include:

A. Facial flushing

B. Water retention

C. Headache

D. Seizures

E. All of the above

6) Which of the following is least likely to occur in a patient with type 1 von Willebrand disease?

A. Bleeding after dental extraction

B. Menorrhagia

C. Postoperative bleeding

D. Nosebleed

E. Joint hemorrhage

7) A patient with type 2N von Willebrand disease is receiving a plasma-derived von Willebrand factor containing product. You can monitor all of the following, for efficacy except:

A. von Willebrand antigen

B. von Willebrand activity (ristocetin cofactor)

C. Prothrombin time

D. Factor VIII activity

E. Symptoms

8) Which of the following is the least likely to occur in a patient with mild factor VIII deficiency?

A. Bleeding after dental extraction

B. Spontaneous joint hemorrhage

C. Bleeding after tonsillectomy

D. Easy bruising

E. Bleeding after trauma

9) All of the following are possible methods of viral inactivation for plasma-derived factor replacement products except:

A. Recombinant technology

B. Solvent detergent

C. Dry heat

D. Pasteurization

E. Monoclonal antibody

10) Which common laboratory test is abnormal in patients with hemophilia?

A. Bleeding time

B. Thrombin time

C. Activated partial thromboplastin time (aPTT)

D. Prothrombin time (PT)

E. Platelet count

11) Which of the following is a false statement?

A. Desmopressin is frequently used for patients with von Willebrand disease

B. Antiinhibitor coagulant complex (Feiba VH Immuno) can be effective in patients with factor VIII inhibitors

C. Recombinant antihemophilic factor concentrate (Bioclate) is a plasma-derived factor IX product

D. Heat-treated antiinhibitor coagulant complex (Autoplex T) is neither a recombinant nor a monoclonal product

E. The dose of nonacog alfa (BeneFix) would be higher than a dose of factor IX concentrate (Mononine) to treat the same patient

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Chapter 82 - Sickle Cell Disease

1) Which of the following statement is *incorrect*

A. Sickle cell disease (SCD) is a hereditary disorder involving abnormal hemoglobin

B. Patients with sickle cell trait usually are asymptomatic but can become symptomatic in extreme conditions

C. SCD is only seen in those with African ancestry

D. The primary clinical manifestations of SCD are hemolysis and vasoocclusion

E. Patients with higher level of fetal hemoglobin generally have a milder disease

2) Patients with sickle cell anemia have increased risk of the following infection

A. *Streptococcus pneumoniae*

B. *Candida* species

C. *Aspergillus* species

D. *Pseudomonas* species

E. *Enterobacter* species

3) Prevention of pneumococcal infection in SCD include

A. 13-valent pneumococcal conjugated vaccine

B. Oral penicillin

C. 23-valent pneumococcal polysaccharide vaccine

D. All of the above

E. None of the above

4) The appropriate penicillin prophylaxis regimen is

A. Penicillin 125 mg twice daily by mouth from 5 years of age to adolescent

B. Penicillin 125 mg once a day by mouth begin at diagnosis until 5 years of age

C. Penicillin 125 mg twice a day by mouth begin at diagnosis until 3 years of age, then 250 mg twice daily until age 5

D. Penicillin 125 mg twice a day by mouth until the first dose of pneumococcal vaccine

E. Penicillin 250 mg twice a day by mouth begin at diagnosis until the first dose of pneumococcal vaccine then once daily

5) Hydroxyurea is useful in management of SCD because

A. It is a chemotherapeutic agent

B. It increases fetal hemoglobin production

C. It suppresses bone marrow production of sickle hemoglobin

D. It inhibits the cation transport in red blood cell membrane

E. It has the potential of cure the disease

6) Which of the following statements is *correct*

A. Hydroxyurea is useful in the management of SCD because the agent is efficacious in reducing pain episodes and has no toxicities

B. Hydroxyurea is preferred over deferoxamine because its sustain effect on fetal hemoglobin and lack of side effect with long-term use

C. Hydroxyurea reduces painful episodes but close monitoring is needed because of its effect on the bone marrow

D. Deferasirox is the drug of choice for fetal hemoglobin induction because of its safety profile

E. Penicillin prophylaxis can be discontinued once fetal hemoglobin inducer is initiated

7) The appropriate management of sickle cell patients presented with fever include the followings *except*:

A. Cefotaxime or ceftriaxone. Vancomycin should also be considered in acutely ill individuals

B. Ibuprofen or Tylenol for fever

C. Fluid

D. Frequent monitoring

E. Pneumococcal vaccine

8) The primary indication for chronic transfusion program is

A. Prevention of infection

B. Prevention of organ damage

C. Lack of fetal hemoglobin response to hydroxyurea

D. Bone marrow suppression secondary to hydroxyurea

E. Prevention of stroke

9) Patients admitted with signs and symptoms of acute chest syndrome should

A. Avoid opioid analgesics because those agents may suppress ventilation

B. Receive twice maintenance fluid to prevent dehydration from hyperventilation

C. Not receive bronchodilators because those agents cause excessive relaxation of airway leading to collapse of the airway

D. Receive appropriate pain management, oxygen, balanced fluid, and antimicrobial agents

E. Be given corticosteroids because the agents reduce hospital stay, need for transfusions, and supportive care and readmission

10) The most common cause for aplastic crisis is

A. Pneumococcal infection

B. ASPEM syndrome occurred after partial exchange transfusion in patients with priapism

C. Parvovirus B 19

D. Sequestration of red blood cell in the spleen

E. Splenectomy

11) Which of the followings is *true* in regard to the management of vasoocclusive pain episodes

A. Hydration and aggressive analgesic are the primary treatment. Analgesic therapy should be individualized

B. Opioid analgesics should be minimally used because patients can get addicted to those agents

C. Patients who require opioid analgesics more than 24 hours are drug-seeking

D. All patients with pain episodes should be hospitalized

E. Fluid restriction should be initiated to prevent fluid overload

12) Analgesic choices for sickle cell patients with mild-to-moderate pain include the followings *except*

A. Nonsteroidal antiinflammatory drugs (NSAIDs)

B. Acetaminophen

C. Opioid analgesics

D. Combination of NSAIDs and opioid analgesics

E. Intramuscular meperidine

13) Patient-controlled analgesic (PCA) is useful in the management of sickle cell pain because

A. It limits the allowable amount that can be delivered to the patient, therefore avoiding confrontation with the patient

B. This method of delivery results in increased duration of action

C. Intramuscular administration of opioid agents should be avoided, especially for young children

D. It gives the patient control over the analgesic therapy

E. It minimizes addiction potential

14) Newborn screen can be cost-effective

A. True

B. False

15) Currently available therapy that can cure SCD is

A. HbF inducer

B. Bone marrow transplant

C. Corticosteroids

D. Vaccines

E. Gene therapy targeting BCL11A

Chapter 83 - Antimicrobial Regimen Selection

1) Which of the following susceptibility data should *most* influence choice of presumptive antimicrobials for a patient admitted to the ICU for an infection?

A. Hospital antibiogram

B. Regional antibiogram

C. National antimicrobial susceptibility data

D. Unit-specific antibiogram

2) Which of the following groups of physical examination findings and laboratory values is suggestive of an infection?

A. Temperature 37.2°C (98.9°F); WBC 11 × 10^3/mm^3 (11 × 10^9/L); bands 0% (0.00)

B. Temperature 37.3°C (99.1°F); WBC 9.1 × 10^3/mm^3 (9.1 × 10^9/L); bands 2% (0.02)

C. Temperature 35.8°C (96.4°F); WBC 21 × 10^3/mm^3 (21 × 10^9/L); bands 10% (0.10)

D. All of the above

3) Which of the following statements considering microbiologic studies in antimicrobial therapy is *false*?

A. A delay in obtaining cultures until after antimicrobial therapy is started might result in false-negatives.

B. Ideally two sets of blood cultures should be obtained peripherally from two different sites 1 hour apart.

C. Coagulase-negative staphylococci recovered from blood cultures always warrant antimicrobial treatment.

D. Urine cultures should be evaluated in conjunction with results of the urinalysis to confirm infection.

4) Change from parenteral to oral therapy may be switched safely considering which of the following criteria?

A. Tolerating oral diet; hemodynamically stable; blood glucose controlled

B. Tolerating oral diet; hemodynamically stable; afebrile for 24 hours

C. Afebrile; WBC trending down; continues on vasopressors

D. All of the above

5) Which of the following is a major antibiotic–drug interaction?

A. Rifampin–warfarin

B. Erythromycin–amiodarone

C. Isoniazid–phenytoin

D. All of the above

6) Which of the following is *not* an antimicrobial pharmacodynamic parameter?

A. AUC:MIC

B. % T above MIC

C. MIC:bioavailability

D. Peak:MIC

7) Which of the following statements regarding synergy and combination antimicrobial therapy is *true*?

A. The combination of any two antimicrobials will always result in synergistic effects.

B. There is strong evidence to support synergistic combinations in treatment of gram-negative bacilli in immunocompetent patients.

C. An example of synergy is the addition of an aminoglycoside to a penicillin in the treatment of enterococcal endocarditis.

D. None of the above.

8) Identify the *most* appropriate monitoring parameter to assess response to antimicrobial therapy.

A. Reculture all infections frequently to ensure adequate microbiologic cure

B. Complete blood cell count with differential

C. Electrolytes

D. Caloric intake

9) Which of the following statements provides the *best* rationale for the use of combination therapy?

A. Combination therapy broadens spectrum of coverage for empirical therapy.

B. Combination therapy may reduce the emergence of resistance and decrease potential toxicities.

C. Combination therapy has been consistently proven to improve outcomes in clinical trials.

D. All of the above.

10) Which of the following group of antimicrobials is known to cause nephrotoxicity?

A. Colistin, tobramycin, rifamycins, tetracycline

B. Chloramphenicol, tobramycin, colistin, vancomycin

C. Ceftriaxone, amikacin, doxycycline, linezolid

D. Vancomycin, moxifloxacin, tobramycin, tetracycline

11) In a patient with liver insufficiency, which of the following medications would warrant dose adjustment?

A. Vancomycin

B. Cefazolin

C. Metronidazole

D. Ciprofloxacin

12) What scenario may *not* be associated with poor clinical response to antimicrobial therapy?

A. Inadequate source control.

B. Inadequate antimicrobial spectrum.

C. Antimicrobial therapy in a neutropenic patient.

D. Antimicrobial combination is not concentration-dependent.

13) A concern of using combination therapy would include:

A. Increased risk for superinfections

B. Increased risk for drug toxicities

C. Possibility of antagonistic effects of combination of two or more antibiotics

D. All of the above

14) Acquired resistance can be classified into the following general mechanisms of resistance *except*:

A. Alteration in the target site

B. Increased activation of efflux pumps

C. Change in membrane permeability

D. Intrinsic resistance

15) Identify which assumption regarding the initiation of antimicrobial cycling at an institution is *false*.

A. The resistance issue is caused by the overuse of a particular class of antimicrobials.

B. Antimicrobial cycling requires a nonrestrictive antimicrobial formulary.

C. Discontinuation of the particular agent or class will restore susceptibility.

D. Antimicrobial agents should be sequenced in an order that mechanisms of resistance do not overlap.

Chapter 84 - Central Nervous System Infections

1) By definition, meningitis is an infection of the:

A. Pia mater

B. Brain tissue

C. Subarachnoid space

D. Dura mater

2) What would you expect the CSF chemistry to look like in case of bacterial meningitis?

A. Presence of red blood cells

B. CSF protein level: 90 mg/dL

C. WBC >10/mm^3 (>10 × 10^6/L) all mononuclear

D. Elevated glucose (70% of serum glucose concentration)

E. All of the above are true

3) All of the following are encapsulated microorganisms except:

A. *Streptococcus pneumoniae*

B. *Listeria monocytogenes*

C. *Neisseria meningitidis*

D. *Haemophilus influenzae*

4) The most important laboratory tests needed to diagnose bacterial meningitis are:

A. Gram stain and aerobic culture

B. CBC with differential

C. Enzyme immunoassay (EIA) and polymerase chain reaction (PCR)

D. MRI or head CT scan

E. PCR testing

5) Penicillin resistance has been seen in:

A. *Streptococcus pneumoniae*

B. *Neisseria meningitides*

C. *Haemophilus influenzae*

D. All of the above

6) The pneumococcal vaccine that is recommended for use by patients over 65 years of age is known as:

A. Prevnar 13®

B. The 23-serotype pneumococcal vaccine

C. A + B

D. None of the above

7) Appropriate initial (empirical) therapy for *Neisseria meningitidis* meningitis (pending antibiotic susceptibility data) includes:

A. Vancomycin alone

B. Ampicillin alone

C. Cefotaxime alone

D. Ampicillin plus vancomycin

8) The microorganism specific to meningitis cases in neonate is:

A. *Streptococcus pneumoniae*

B. Group B *Streptococcus*

C. *Haemophilus influenzae*

D. All of the above

9) Which of the following lists of medications achieve therapeutic concentrations in the CNS with or without inflammation?

A. Piperacillin, imipenem, acyclovir

B. Aminoglycosides, ketoconazole, itraconazole

C. Fluconazole, moxifloxacin, trimethoprim

D. Ciprofloxacin, nafcillin, penicillin

10) Tuberculous meningitis is often identified by:

A. Cellular bacterial Gram stain

B. Negative purified protein derivative (PPD)

C. Paralysis of nerve VI

D. Stress test

11) The most common form of fungal meningitis in the United States is:

A. *Cryptococcus neoformans*

B. *Candida albicans*

C. *Torulopsis glabrata*

D. *Aspergillus* spp.

12) The most common CNS complication associated with AIDS is:

A. Tuberculous meningitis

B. HIV encephalitis

C. *Cryptococcus neoformans* meningitis

D. Alzheimer's

13) The use of dexamethasone in meningitis has been questioned due to the:

A. Corticosteroid's tendency to worsen inflammation

B. Possible decrease in drug penetration into the CNS

C. Corticosteroid's effects on lipid profile

D. Cost of corticosteroids

14) Close contacts of meningitis patients should receive prophylaxis in cases of:

A. *Neisseria meningitides*

B. *Listeria monocytogenes*

C. *Staphylococcus aureus*

D. *Streptococcus pneumoniae*

15) Multidrug-resistant *Streptococcus pneumoniae* may force clinicians to resort to agents such as:

A. Aztreonam

B. Erythromycin

C. Tigecycline

D. Linezolid

Chapter 85 - Lower Respiratory Tract Infections

1) In the absence of a complicating bacterial infection, which of the following is the *most* appropriate approach to treating acute bronchitis?

A. Prescribing broad-spectrum antibiotics

B. Routinely recommending nonprescription cough and cold preparations

C. Providing symptomatic and supportive care

D. Discouraging hydration and bedrest

2) Which of the following is *true* regarding chronic bronchitis?

A. The majority of patients who suffer from chronic bronchitis have a negative smoking history.

B. N-Acetylcysteine should be routinely prescribed to treat associated bronchospasm.

C. Given the low incidence of bacterial resistance, broad-spectrum antibiotics are rarely employed.

D. During acute exacerbations, the use of systemic corticosteroids may be warranted.

3) Which of the following is the *most* common cause of bronchiolitis?

A. Respiratory syncytial virus

B. Parainfluenza virus

C. *Mycoplasma*

D. Adenovirus

4) Which of the following statements is *true* regarding the treatment of bronchiolitis?

A. The routine use of systemic corticosteroids should be encouraged.

B. The use of aerosolized albuterol is associated with significant improvement in a majority of patients.

C. Due to its clinical efficacy, ribavirin should be routinely prescribed.

D. Generous amounts of fluids should be provided.

5) Community-acquired pneumonia is *most* commonly associated with:

A. *Staphylococcus aureus*

B. *Listeria monocytogenes*

C. *Legionella* species

D. *Streptococcus pneumoniae*

6) Which of the following would be the *most* appropriate choice as empirical therapy for hospital-acquired pneumonia?

A. Amoxicillin

B. Clindamycin

C. Piperacillin/tazobactam

D. Erythromycin

7) Which of the following pathogens should be *highly* considered when prescribing empirical antimicrobial therapy to a newborn?

A. *Mycoplasma*

B. Group A *Streptococcus*

C. Group B *Streptococcus*

D. *Pseudomonas*

8) It is important to identify patients likely to have healthcare-associated pneumonia because:

A. Empirical therapy is very different compared with hospital-acquired pneumonia.

B. These patients are more likely to receive inappropriate therapy and have a higher risk of mortality.

C. These patients will not require hospitalization.

D. Broad-spectrum antibiotics are not routinely recommended for empirical therapy since MDR pathogens are unlikely.

9) Which of the following would be the *most* appropriate therapy for the treatment of mycoplasma pneumonia in a patient with compliance issues and currently receiving theophylline?

A. Erythromycin

B. Azithromycin

C. Clindamycin

D. Clarithromycin

10) Which of the following would be the *most* preferred antimicrobial agents in the treatment of aspiration pneumonia in a hospitalized patient?

A. Clindamycin and gentamicin

B. Gentamicin and oxacillin

C. Tobramycin and oxacillin

D. Tobramycin and erythromycin

11) Which of the following is *true* regarding avian influenza?

A. Respiratory distress and clotting abnormalities manifest gradually.

B. Typical signs and symptoms include conjunctivitis, fever, and rhinitis.

C. Oxygen therapy is rarely warranted.

D. Due to potential resistance, amantadine remains the drug of choice.

12) Which of the following concerning viral pneumonias is *correct*?

A. With the exception of immunocompromised patients, viruses are a major cause of pneumonia in adult patients.

B. Influenza virus, type B, is the most common isolate in the adult population.

C. RSV, parainfluenza, and adenoviruses are common causes of pneumonia in children.

D. With the availability of tissue cultures, the virus is often identified within 24 hours.

13) Which of the following is *true* regarding hospital-acquired pneumonias?

A. *Staphylococcus aureus* and gram-negative bacilli are rarely associated with hospital-acquired pneumonia.

B. Broad-spectrum antibiotics should be withheld until microbiologic cultures are available.

C. Diagnosis is often difficult due to underlying lung pathology of intensively ill patients.

D. As a preventative measure, the use of histamine receptor antagonists should be encouraged.

14) Which of the following would be *most* appropriate for the empirical treatment of pneumonia where *Pseudomonas* is a concern?

A. Azithromycin plus doxycycline

B. Cefotaxime plus clindamycin

C. Amoxicillin/clavulanate plus levofloxacin

D. Piperacillin/tazobactam plus ciprofloxacin

15) Acute tracheobronchitis is *most* commonly associated with which of the following pathogens?

A. *Pseudomonas*

B. *Klebsiella*

C. A virus

D. *Haemophilus influenzae*

Chapter 86 - Upper Respiratory Tract Infections

1) Which of the following is the most common pathogen in acute otitis media?

A. Viruses

B. *Streptococcus pneumoniae*

C. *Haemophilus influenzae*

D. *Moraxella catarrhalis*

2) Which of the following is a risk factor for amoxicillin-resistant bacteria in acute otitis media?

A. Attendance at a child care center

B. Receipt of antibiotics within the last 30 days

C. Age younger than 2 years

D. All of the above are correct

3) Which of the following characteristics can help differentiate between acute otitis media and otitis media with effusion?

A. Middle ear effusion

B. Cough

C. Ear pain

D. Two of the above are correct

4) Which of the following is considered to be a first-line recommendation for the treatment of a 6-year-old child with acute otitis media and a fever of 38.0°C (100.4°F)?

A. Azithromycin 500 mg daily for 1 day, followed by 250 mg daily for 5 more days

B. Amoxicillin 90 mg/kg/day for 7 days

C. Amoxicillin 90 mg/kg/day plus clavulanate 6.4 mg/kg/day for 7 days

D. Cefuroxime 250 mg twice daily for 10 days

5) A child with moderate symptoms of acute otitis media returns to clinic after taking amoxicillin for 4 days without improvement; which of these alternatives would you recommend?

A. Amoxicillin–clavulanate

B. Trimethoprim–sulfamethoxazole

C. Ceftriaxone

D. Erythromycin–sulfisoxazole

6) Which of the following statements is accurate regarding the value of vaccines for the prevention of acute otitis media?

A. The seven-valent pneumococcal conjugate vaccine is effective for the prevention of acute otitis media when administered during infancy.

B. The seven-valent pneumococcal conjugate vaccine is effective for the prevention of recurrent acute otitis media infections.

C. The seasonal influenza vaccine may help prevent acute otitis media.

D. Two of the above are correct.

7) Which of the following is the most common pathogen in acute rhinosinusitis?

A. Viruses

B. *Streptococcus pneumoniae*

C. *Haemophilus influenzae*

D. *Moraxella catarrhalis*

8) Which of the following is suggestive of bacterial versus viral rhinosinusitis?

A. Persistent symptoms for 10 days or more

B. Worsening of symptoms after 7 days

C. Lack of symptomatic response to nonprescription nasal decongestants

D. All of the above are correct

9) Which of the following suggests a need for referral to a specialist in a patient with acute bacterial rhinosinusitis?

A. Immunosuppressive illness

B. Mental status changes

C. Both of the above are correct

D. Neither of the above is correct

10) Which of the following is considered to be a first-line recommendation for the treatment of a 35-year-old woman with a 12-day history of persistent nasal congestion and sinus pain that is unresponsive to nonprescription nasal decongestants?

A. Amoxicillin–clavulanate

B. Clarithromycin

C. Levofloxacin

D. Clindamycin

11) Which of the following nonprescription medications is recommended for the management of patients with acute bacterial rhinosinusitis?

A. Phenylephrine

B. Loratadine

C. Both of the above are correct

D. Neither of the above is correct

12) A 10-year-old male presents to the pediatrician's office with severe throat pain and dysphagia. His highest temperature was 37.7°C (99.9°F). During the physical exam, he is found to have swollen tonsils but no swelling of the anterior cervical nodes. Based on the above information, when is antibiotic therapy indicated?

A. Clinical criteria present and low index of suspicion

B. Clinical criteria and RADT positive

C. Clinical criteria and pending laboratory results

D. B and C

E. All of the above are situations when starting antibiotics is indicated

13) A local daycare reports several cases of GABHS pharyngitis. How many days must pass before the risk of additional cases is no longer a concern?

A. 1 day

B. 5 days

C. 10 days

D. 14 days

E. As soon as child is absent from daycare

14) The most appropriate therapy for a young adult diagnosed with GABHS pharyngitis is:

A. Erythromycin ethylsuccinate 400 mg orally every 6 hours for 10 days

B. Levofloxacin 750 mg orally daily for 10 days

C. Penicillin V 500 mg orally twice daily for 10 days

D. Sulfamethoxazole–trimethoprim one DS tablet orally twice daily for 10 days

E. Tonsillectomy

15) A 9-year-old female (weighing 30 kg) is diagnosed with recurrent pharyngitis. She has a history of anaphylaxis to penicillin. Which of the following is most appropriate?

A. Amoxicillin–clavulanate 400 mg/37.5 mg chewable tablets—take one tablet orally thrice daily

B. Clindamycin hydrochloride 75 mg capsules—take three capsules orally thrice daily

C. Sulfamethoxazole–trimethoprim 200 mg/40 mg per 5 mL oral suspension—take three teaspoonfuls orally twice daily

D. Penicillin benzathine 0.6 million units IM—administer one dose

E. None of the above are appropriate choices

Chapter 87 - Influenza

1) Which of the following characteristics is *true* for the influenza B virus?

A. Responsible for the seasonal epidemics of influenza

B. Typically associated with sporadic outbreaks

C. Categorized into subtypes based on hemagglutinin and neuraminidase

D. Does not cause disease in humans

2) What are the primary subtypes of influenza A that have been circulating among humans over the past 30 years?

A. H3N2 and H1N1

B. H3N2 and H5N1

C. H2N2 and H1N1

D. H2N2 and H5N1

3) Which of the following statements is *true* regarding antigenic drift and antigenic shift?

A. Antigenic shift occurs when point mutations in the surface antigens of a particular subtype create antigenic variants, resulting in small changes in the hemagglutinin and/or neuraminidase molecules.

B. Antigenic drift occurs when the influenza virus acquires a new hemagglutinin and/or neuraminidase via genetic reassortment.

C. Antigenic shift causes seasonal epidemics of influenza and is the rationale behind the recommendation for annual vaccination.

D. Antigenic drift causes seasonal epidemics of influenza and is the rationale behind the recommendation for annual vaccination.

4) In addition to novelty, an influenza virus must possess which of the following characteristics in order to potentially cause a pandemic?

A. Replication in humans.

B. Person-to-person transmission.

C. Both A and B are necessary.

D. Novelty alone is sufficient for an influenza virus to potentially cause a pandemic.

5) The influenza virus can be transmitted person-to-person via which of the following mechanisms?

A. Influenza virus is not transmitted person-to-person.

B. Via inhalation of respiratory droplets after someone sneezes.

C. Contact with an object contaminated with respiratory secretions, such as a used tissue.

D. Both B and C could allow viral transmission.

6) How long after the onset of illness are children considered infectious?

A. 2 days

B. 5 days

C. 7 days

D. ≥10 days

7) A 52-year-old female presents with fever, malaise, nonproductive cough, and sore throat for the last 5 days. She is diagnosed with influenza. What other signs and symptoms of influenza would be classical for this patient?

A. Rhinitis.

B. Nausea and vomiting.

C. Otitis media.

D. None of the above is a classical sign and symptom of influenza.

8) Which diagnostic test would be the *most* appropriate to use in the patient from Question 7 to provide a rapid result?

A. Rapid antigen test.

B. Direct fluorescence antibody test.

C. Viral culture.

D. All of the above could be used in this patient for rapid diagnosis.

9) Which of the following patients is *not* at high risk for complications or severe disease from seasonal influenza infection?

A. A 28-year-old pregnant woman at 34 weeks' gestation with no significant medical history

B. A 47-year-old male with hypertension successfully managed with lisinopril

C. An 82-year-old female residing in a nursing home

D. A 12-year-old boy with asthma

10) Which of the following patients should receive the trivalent influenza vaccine (TIV) but *not* the live-attenuated influenza vaccine (LAIV)?

A. A 37-year-old female with HIV and a CD4 cell count of 150 cells/mm^3 (150×10^6/L)

B. A 45-year-old male hemodialysis patient with a hypersensitivity to eggs

C. A healthy 2-year-old girl

D. A healthy 39-year-old accountant

11) Which of the following statements is *true*?

A. Thimerosal-free vaccines are available because thimerosal causes autism.

B. No thimerosal-free formulations of the influenza vaccine are available.

C. The risks of using a thimerosal-containing vaccine outweigh the benefits of receiving the influenza vaccine.

D. No scientifically persuasive evidence exists to suggest harm from thimerosal exposure from a vaccine.

12) Adamantane monotherapy would be most appropriate in which of the following situations?

A. Prophylaxis for patients in a nursing home during an influenza A outbreak.

B. Prophylaxis for patients in a nursing home during an influenza B outbreak.

C. Treatment in a 58-year-old male presenting within 36 hours of the onset of illness.

D. Use of the adamantanes is not appropriate for monotherapy because of rapid development of resistance.

13) In which of the following patients would prophylaxis with an antiviral medication be appropriate?

A. A vaccinated (received 1 month ago) 74-year-old male resident of a long-term care facility with a current influenza outbreak.

B. A 54-year-old female presenting to clinic to receive her influenza vaccination because she heard about several influenza cases in the community.

C. An unvaccinated 34-year-old mother of three (healthy children aged 3, 6, and 9 years).

D. Prophylaxis with antiviral medication is appropriate in all of the above.

14) Which of the following is the most appropriate prophylactic regimen for the patient(s) requiring prophylaxis from Question 13?

A. Oseltamivir 75 mg daily for the duration of influenza activity

B. Zanamivir 10 mg twice daily for 5 days

C. Rimantadine 200 mg once daily for the duration of influenza activity

D. Zanamivir 10 mg twice daily for 2 days

15) A 21-year-old, otherwise healthy, female college student presents to clinic with a history of 4 days of fever, myalgia, dry cough, and malaise. She is diagnosed with influenza A infection. What would be the most appropriate recommendation for her?

A. Oseltamivir 75 mg once daily for 5 days

B. Oseltamivir 75 mg plus rimantadine 100 mg twice daily for 5 days

C. Maintenance of fluid intake, warm tea, and cough lozenges

D. Zanamivir 10 mg twice daily for 5 days plus maintenance of fluid intake, warm tea, and cough lozenges

Chapter 88 - Skin and Soft-Tissue Infections

1) A 21-year-old male presents to the outpatient clinic complaining of a sore area on his thigh. He said it started as just one sore that was red and tender. On physical examination, several discrete nodules are present that are fluctuant and painful. The man states that he is allergic to penicillin, although he does not know the type of reaction that he had. He is afebrile and routine labs (complete blood count, chemistry panel) are normal. The most appropriate therapy for this patient would be:

A. Cephalexin

B. Incision and drainage

C. Linezolid or vancomycin

D. Penicillin VK

2) A 76-year-old man presents to the emergency department with complaints of a burning pain on his lower leg. Physical examination reveals an erythematous, edematous lesion with a raised border that is sharply demarcated from uninfected skin. The man stated that he felt like he had the flu (fever, tired) before the pain began. His vital signs showed a temperature of 38.3°C (101°F) and a CBC revealed a white blood cell count of 17,000 cells/mm^3 (17×10^9/L). The man stated that he was allergic to clarithromycin (made him sick to his stomach). The most appropriate therapy for this patient would be:

A. Dicloxacillin

B. Erythromycin

C. Nafcillin

D. Penicillin G

3) A 5-year-old girl is brought to the clinic with complaints of itchy blisters on her face. Her face has a small area of erythema with a mixture of small vesicles filled with clear serous fluid and some larger pustules. Thin golden-yellow crusts of previously ruptured vesicles also cover her face. The child is afebrile, and has a normal complete blood count and no known drug allergies. The most appropriate therapy for this patient would be:

A. Erythromycin

B. Incision and drainage

C. Mupirocin

D. Penicillin G

4) A 15-year-old male is brought to the emergency department by his parents with complaints of fever, chills, and headache. The young man stated that several days ago he had developed a blister on his right hand from pitching baseball. On physical examination, a bright red, narrow streak extends from the blister to his armpit. Regional lymph nodes are enlarged and tender. A complete blood count was performed that showed his white blood cell count to be elevated. The most appropriate therapy for this patient would be:

A. Ciprofloxacin

B. Mupirocin

C. Penicillin G

D. Vancomycin

5) A 32-year-old female presents to her family clinician complaining that her lower leg feels hot and painful. Physical examination shows the lower leg to have erythema and edema, and it is warm to the touch. The erythematous area is nonelevated and has poorly defined margins. The woman is afebrile and her complete blood count is normal. She has no known allergies. The most appropriate empiric therapy for this patient would be:

A. Dicloxacillin

B. Linezolid orally

C. Penicillin VK + clindamycin

D. Vancomycin or daptomycin

6) A 24-year-old female presents to her family clinician complaining of a sore she thought might be from a spider bite. Physical examination reveals a purulent lesion on her lower left face, surrounded by a 2 cm diameter area of redness and swelling. An aspirate of the purulent material showed many white blood cells and many

gram-positive cocci in clusters. A complete blood count revealed a slightly elevated white blood count. The patient was afebrile and had no known allergies. The most appropriate therapy for this patient would be:

A. Drainage of the lesion, followed by ciprofloxacin

B. Drainage of the lesion, followed by penicillin VK

C. Drainage of the lesion, followed by trimethoprim–sulfamethoxazole

D. Drainage of the lesion, followed by vancomycin

7) A 54-year-old male presents to the emergency department complaining of severe pain in his left lower leg. His leg is hot, swollen, and erythematous without sharp margins. Fluid-filled bullae were present; Gram stain of the clear fluid revealed gram-positive cocci in chains. Vital signs reveal a high temperature (40°C [104°F]), and a complete blood count revealed an elevated white blood count (22,000 cells/mm^3 [22 × 10^9/L]). The most appropriate therapy for this patient would be:

A. Clindamycin

B. Penicillin G

C. Surgical debridement

D. All of the above

8) A 68-year-old female presents to the diabetes clinic for a routine visit. She has no complaints. Her past medical history is significant for diabetes mellitus, hyperlipidemia, hypertension, and chronic renal insufficiency. Vital signs showed an elevated blood pressure; an elevated glucose was noted on a chemistry panel. Physical examination reveals a small ulcer on the sole of her right foot. The lesion is erythematous, with the presence of pus and a foul-smelling odor. The patient has allergies to penicillin, ceftriaxone (difficulty breathing with both), and sulfa (rash). She has received multiple courses of antibiotic therapy previously, but the wound has never completely healed. The clinician counsels the patient on the importance of glucose and blood pressure control, as well as selfexamination and care of her feet. He also initiates antimicrobial therapy for the infection on her foot, which he judges to be mild in severity. The most appropriate therapy for this patient would be:

A. Amoxicillin–clavulanic acid

B. Cephalexin

C. Moxifloxacin

D. Trimethoprim–sulfamethoxazole

9) One week later the patient in the preceding question returns with no improvement in her ulcer. She states that she has been compliant in taking her therapy as prescribed. The clinician obtains a small aspirated sample for culture and sensitivity. The Gram stain shows many white blood cells and many gram-

positive cocci in clusters. The culture grew methicillin-resistant *Staphylococcus aureus* (MRSA), which was resistant to penicillin, cephalexin, and erythromycin, but sensitive to clindamycin, doxycycline, levofloxacin, gentamicin, trimethoprim–sulfamethoxazole, and vancomycin. Anaerobic cultures were still pending. Appropriate management of this patient at this time would be:

A. Switch therapy to doxycycline.

B. Switch therapy to gentamicin.

C. Switch therapy to trimethoprim–sulfamethoxazole.

D. Switch therapy to vancomycin.

10) Treatment failures with clindamycin in patients with erythromycin-resistant/clindamycin-susceptible strains of *S. aureus* or *Streptococcus pyogenes* could be explained by:

A. High bacterial inoculum

B. Inducible clindamycin resistance (positive D-test)

C. Inducible clindamycin resistance via a *mecA* gene

D. Presence of Panton-Valentine leukocidin

11) The most important aspect in the prevention of pressure sores is:

A. Eliminating friction

B. Eliminating moisture

C. Eliminating pressure

D. Prophylactic topical antibiotics

12) An 8-year-old female was brought to the emergency department immediately after being bitten by a neighbor's dog. The bite left a small laceration, but no signs of infection were present. The most appropriate management of this patient's wound would be:

A. Incision and drainage

B. Irrigation, immobilization, and elevation

C. Prophylaxis with doxycycline or ciprofloxacin

D. Tetanus–diphtheria toxoids and rabies prophylaxis

13) The most appropriate therapy for an infected dog or cat bite would be:

A. Amoxicillin–clavulanic acid

B. Cephalexin

C. Penicillin VK + clindamycin

D. Vancomycin

14) A 16-year-old male is brought to the emergency department with a bite wound to his arm suffered 3 hours ago during a fight at school. The wound shows no signs at infection at this time. The most appropriate therapy for this patient would be:

A. Amoxicillin–clavulanic acid for 3 to 5 days

B. Cephalexin for 5 to 10 days

C. Clindamycin or erythromycin for 7 to 10 days

D. No antimicrobial therapy at this time

15) Antimicrobial therapy for clenched-fist injuries should include agents with antimicrobial activity against the following organism(s):

A. CA-MRSA

B. *Eikenella corrodens, Staphylococcus aureus,* and anaerobes

C. *Eikenella corrodens, Pasteurella multocida,* and *Staphylococcus aureus*

D. *Pasteurella multocida, Staphylococcus aureus,* and *Streptococcus pyogenes*

Chapter 89 - Infective Endocarditis

1) The condition associated with the *highest risk* of developing infective endocarditis (IE) is:

A. Mitral valve prolapse with regurgitation

B. The presence of a prosthetic heart valve

C. Rheumatic fever without valvular defects

D. Intravenous drug abuse

2) Which one of the following organisms is not commonly implicated in infective endocarditis?

A. *Streptococcus* species

B. *Staphylococcus* species

C. *Enterococcus* species

D. *Candida* species

3) A 64-year-old man presents to the emergency department with chest pain, fever, fatigue, and arthralgias. His past medical history is significant for rheumatic heart disease and a dental procedure a few weeks before admission. He currently shows no “stigmata” of endocarditis on physical examination, although endocarditis is suspected. The most likely organism is:

A. Viridans streptococci

B. *Staphylococcus aureus*

C. *Enterococcus fecalis*

D. *Pseudomonas aeruginosa*

4) A patient who recently had mitral valve replacement (38 days ago) was admitted to the clinic with persistent fever and malaise. Endocarditis is suspected, and the most likely etiology is:

A. Group A streptococci

B. Viridans streptococci

C. *Staphylococcal epidermidis*

D. *Enterococcus faecalis*

5) A 74-year-old man with a history of endocarditis underwent prostate surgery 3 weeks ago. For the past week he has had persistent fever and weakness. Blood cultures are pending, but an echocardiogram suggests a potential change consistent with new endocarditis. If the patient is subsequently diagnosed with this infection, the most likely organism is:

A. Group A streptococci

B. Viridans streptococci

C. Staphylococcal epidermitis

D. *Enterococcus faecalis*

6) In a patient with subacute endocarditis, which one of the following laboratory findings does *not* support the diagnosis?

A. Normocytic, normochromic anemia

B. Proteinuria

C. Decreased erythrocyte sedimentation rate

D. Thrombocytopenia

7) Based on IE diagnostic criteria, the two most important parameters for the diagnosis of the infection are:

A. Laboratory abnormalities and positive blood cultures

B. Positive blood cultures and echocardiographic changes

C. Electrocardiogram changes and positive physical findings

D. Positive physical findings and positive blood cultures

8) The following situations may lead to “culture-negative” endocarditis *except*:

A. The use of antibiotics prior to blood culture sampling

B. Gram-negative bacteria from the HACEK group (e.g., *Kingella kingae*)

C. Nonbacterial etiologies (e.g., fungi)

D. Subacute, left-sided IE

9) With regard to the general treatment of infective endocarditis, which of the following statements is *false*?

A. High-dose parenteral therapy is necessary to ensure adequate penetration of the agent into the vegetation.

B. Clinical cure can only occur if synergistic aminoglycosides are used in combination with a *β*-lactam agent.

C. Bactericidal antibiotics are necessary for clinical cure.

D. Antimicrobial treatment is continued for weeks because the organisms are located in an area of impaired host defenses, and complete bacterial eradication is difficult.

10) TH is a 60-year-old woman who has developed endocarditis with *viridans* streptococci (MIC ≤0.1 mcg/mL [mg/L]) on a native heart valve. The patient has no known drug allergies and normal renal function. Which of the following IV regimens is *most appropriate*?

A. Ceftriaxone 2 g once daily for 2 weeks

B. Penicillin G 12 to 18 million units every 24 hours for 4 weeks

C. Cefazolin 2 g every 8 hours for 2 weeks plus gentamicin 1 mg/kg every 8 hours for 2 weeks

D. Penicillin G 12 to 18 million units/24 hours for 4 weeks plus gentamicin 1 mg/kg every 8 hours for 2 weeks

11) A 35-year-old IV drug abuser has been diagnosed with tricuspid valve endocarditis due to methicillin-sensitive *Staphylococcus aureus*. Other than IV drug abuse, his past medical history is noncontributory. He has no known drug allergies, has normal renal function, and appears in no apparent distress. Which of the following IV regimens would be *most appropriate*?

A. Nafcillin 2 g every 4 hours for 2 weeks plus gentamicin 1 mg/kg every 8 hours for 2 weeks

B. Vancomycin 15 mg/kg every 12 hours for 4 weeks plus gentamicin 1 mg/kg every 8 hours for 2 weeks

C. Nafcillin 2 g every 4 hours for 4 weeks

D. Nafcillin 2 g every 4 hours for 4 weeks plus gentamicin 1 mg/kg every 8 hours for 4 weeks

12) A 41-year-old woman has prosthetic valve endocarditis due to coagulase-negative staphylococci that is methicillin-resistant. She has no known drug allergies, and her renal function is within normal limits. Which of the following regimens is *most appropriate*?

A. Nafcillin 2 g every 4 hours for 6 weeks and gentamicin 1 mg/kg every 8 hours for 6 weeks

B. Vancomycin 15 mg/kg IV every 12 hours for 6 weeks, plus gentamicin 1 mg/kg every 8 hours for the initial 2 weeks

C. Nafcillin 2 g every 4 hours and rifampin 300 mg orally every 8 hours for 6 weeks, plus gentamicin 1 mg/kg every 8 hours for the initial 2 weeks

D. Vancomycin 15 mg/kg IV every 12 hours and rifampin 300 mg orally every 8 hours for 6 weeks, plus gentamicin 1 mg/kg every 8 hours for the initial 2 weeks

13) The administration of aminoglycosides by the extended-interval dosing method is reasonable for endocarditis caused by:

A. Streptococci

B. Staphylococci

C. Enterococci

D. HACEK microorganisms

14) Which one of the following comments is *true* concerning standard monitoring parameters in patients receiving endocarditis treatment?

A. Serum bactericidal titers should be obtained during the first week of therapy to determine the likely response to treatment.

B. The goal peak gentamicin concentration should be 6 mcg/mL (mg/L; 12.5 µmol/L).

C. Blood culture should be negative within a few days.

D. The MBC should be determined for all streptococci.

15) A 52-year-old woman is scheduled for a major dental extraction in 3 days. She has a history of prior infective endocarditis. She is allergic to penicillin. Her physician asks whether she should receive antibiotic prophylaxis before her procedure. The most appropriate response is:

A. Yes, ampicillin 2 g orally 1 hour before the procedure.

B. Yes, clindamycin 600 mg orally 1 hour before the procedure.

C. Yes, cephalexin 500 mg orally 2 hours before the procedure.

D. No, the most recent guidelines do not recommend prophylaxis in this situation.

Chapter 90 - Tuberculosis

1) Which of the following regimens might you recommend for your patient with newly diagnosed culture-positive pulmonary TB caused by a drug-susceptible organism, based on guidelines provided by the CDC?

A. Isoniazid, rifampin, pyrazinamide, and ethambutol daily × 2 months, followed by isoniazid and pyrazinamide × 4 months

B. Isoniazid, rifampin, pyrazinamide, and clarithromycin daily × 2 months, followed by isoniazid and rifampin × 4 months

C. Isoniazid, rifampin, pyrazinamide, and ethambutol daily × 2 months, followed by isoniazid and ethambutol × 4 months

D. Isoniazid, rifampin, pyrazinamide, and ethambutol daily × 2 months, followed by isoniazid and rifampin × 4 months

2) TC is a 74-year-old man recently diagnosed with MDR-TB. His physician is thinking about starting a regimen of amikacin, levofloxacin, cycloserine, and *p*-aminosalicylic acid, but is uncertain if this is correct. Therefore, he asks you to evaluate this proposed regimen. You note that his susceptibility tests indicate his organism is susceptible to amikacin, ethambutol, levofloxacin, cycloserine, and *p*-aminosalicylic acid. His estimated creatinine clearance is 25 mL/min; he has a history of psychosis. From this information, you recommend the following:

A. Replace the planned cycloserine with ethambutol 15 mg/kg orally three times per week; make adjustments to AK for renal dysfunction.

B. Continue the planned regimen, but make adjustments to amikacin for renal dysfunction.

C. Replace cycloserine with EMB 25 mg/kg orally once daily; make adjustments to amikacin for renal dysfunction.

D. Replace *p*-aminosalicylic acid with ethambutol 15 mg/kg orally three times per week; make adjustments to amikacin for renal dysfunction.

3) Which one of the following patients would be at greatest risk of developing TB disease?

A. Joe, who recently traveled to Canada

B. Eric, your 28-year-old pastry chef from France, with cough and fever

C. Samantha, a world traveler whose medication list includes tenofovir, emtricitabine, and etravirine

D. Lee, your symptom-free patient from Vietnam

4) Which of the following tests is performed in the laboratory as a blood test to identify patients who have been infected with *M. tuberculosis*?

A. Mantoux test

B. Nucleic acid amplification test

C. AFB smear

D. Interferon-γ release assay (QuantiFERON®-TB Gold)

5) Which of the following drugs can cause patients to develop pruritus and orange discoloration of their urine, sputum, sweat, and tears?

A. Isoniazid

B. Ethambutol

C. Rifampin

D. Streptomycin

6) A 68-year-old Asian male with active TB has been on a four-drug anti-TB medication (rifampin, isoniazid, pyrazinamide, and ethambutol) regimen for 5 weeks. He complains that his right big toe has been painful for 2 weeks and recently he has a hard time walking around the house. On examination, the right big toe is tender and red. Laboratory testing shows an elevated uric acid level and gout is suspected. Which of the following anti-TB medications is most likely associated with this side effect?

A. Isoniazid

B. Pyrazinamide

C. Rifampin

D. Ethambutol

7) An otherwise healthy 29-year-old Asian female with active TB has been improving symptomatically after 6 weeks of anti-TB medications (rifampin, isoniazid, pyrazinamide, and ethambutol). However, for the past 2 weeks, she has noticed trouble reading phone numbers in the phone book, and has had trouble reading the newspaper. On examination, her visual acuity and red/green perception are diminished. The most likely diagnosis is:

A. Ethambutol-associated optic neuritis

B. Isoniazid-induced hepatitis

C. Macular degeneration

D. TB dissemination to her eyes

8) Which of the following antiretroviral medications can be used in a patient who is also taking rifampin?

A. Indinavir (Crixivan)

B. Lopinavir (Kaletra)

C. Delavirdine (Rescriptor)

D. Efavirenz (Sustiva)

9) A 55-year-old emergency room nurse was exposed to TB 4 weeks ago. Susceptibility data are pending for the patient's isolate. Her current PPD was read as 8 mm induration. She has no symptoms and her chest x-ray is normal. Which of the following is the best option in this patient?

A. No treatment is needed at this time because the patient is asymptomatic.

B. Rifampin daily for 4 months.

C. Isoniazid daily for 9 months.

D. Rifampin and pyrazinamide for 2 months.

10) Which of the following regimens would be the best option for a 26-year-old pregnant female recently diagnosed with active TB?

A. Isoniazid, rifampin, and pyrazinamide

B. Isoniazid, rifampin, and ethambutol

C. Isoniazid, ethambutol, and pyrazinamide

D. Isoniazid, rifampin, and streptomycin

11) A 67-year-old male has received 8 weeks of therapy with rifampin, isoniazid, ethambutol, and pyrazinamide. His initial chest radiograph showed cavitation in the right lung and his culture at this time is positive, although his signs and symptoms of TB are better. Which of the following would be the best option for the patient at this time?

A. Continue current treatment and check serum concentrations of his TB drugs.

B. Add moxifloxacin and check serum concentrations of his TB drugs.

C. Extend his current TB treatment to 9 months.

D. Discontinue ethambutol and pyrazinamide, and continue rifampin and isoniazid for 4 months.

12) A 23-year-old Hispanic male with HIV infection and active TB is receiving highly active antiretroviral therapy and antituberculous treatment with rifabutin, isoniazid, pyrazinamide, and ethambutol by DOT. He reports that his right eye has been hurting him for 3 days and is now red. What is the most likely medication-induced condition?

A. Ethambutol-induced optic neuritis

B. Isoniazid-induced peripheral neuropathy

C. Pyrazinamide-induced acidosis leading to optic neuritis

D. Rifabutin-related uveitis

13) A 40-year-old HIV-positive male presents with a positive PPD (6 mm). His chest x-ray is clear and he does not have any signs or symptoms of active TB. Which of the following options is best to treat latent TB in a 40-year-old HIV-positive male on antiretroviral therapy?

A. Isoniazid daily for 6 months

B. Isoniazid daily for 9 months

C. Isoniazid and rifampin daily for 9 months

D. Rifampin daily for 4 months

14) Which of the following patients would most benefit from therapeutic drug monitoring?

A. A patient who is smear positive after 6 weeks of treatment.

B. An HIV-positive patient responding to therapy.

C. An HIV-positive patient being treated for latent TB.

D. Therapeutic drug monitoring is recommended in all patients undergoing treatment for TB.

15) Rifabutin should be chosen over rifapentine or rifampin when a patient is on certain combined antiretroviral combinations because:

A. It has a better side effect profile in HIV-positive patients.

B. It is less likely to induce hepatic clearance of the antiretroviral drugs.

C. It has a lower risk of uveitis.

D. Serum concentration monitoring is available for rifabutin.

Chapter 91 - Gastrointestinal Infections and Enterotoxigenic Poisonings

1) The most common cause of diarrhea throughout the world is:

A. Enterotoxigenic *Escherichia coli*

B. *Shigella* spp.

C. Viruses

D. *Cryptosporidium*

2) A patient exhibiting watery diarrhea is most likely to be infected with which pathogen?

A. *Shigella* spp.

B. *Campylobacter* spp.

C. Enterohemorrhagic *E. coli*

D. Norovirus

3) Routine stool culture will screen for the presence of:

A. *Clostridium perfringens*, *Vibrio* species, *Bacillus cereus*

B. *Campylobacter jejuni*, *Shigella* species, *Salmonella* species

C. *E. coli*, *Yersinia enterocolitica*, *Salmonella* Typhi

D. Rotovirus, norovirus, astrovirus

4) Hemolytic uremic syndrome secondary to enterohemorrhagic *E. coli* is most likely to occur in a:

A. 3-Year-old male

B. 12-Year-old female

C. 33-Year-old pregnant female

D. 25-Year-old male on a vegan diet

5) For maintenance phase of oral rehydration solution in a 5-year-old child, which of the following formulations would be preferred?

A. Glucose-based; sodium concentration 10 to 40 mEq/L

B. Nonglucose-based; sodium concentration 50 to 90 mEq/L

C. Glucose-based; sodium concentration 50 to 90 mEq/L

D. Nonglucose-based; sodium concentration 100 to 150 mEq/L

6) Diarrhea in a 7-year-old female caused by *Shigella* spp. should be treated with which therapy?

A. Azithromycin 10 mg/kg/day daily for 3 days

B. Metronidazole 7.5 mg/kg daily for 3 days

C. Trimethoprim–sulfamethoxazole DS twice daily for 3 to 5 days

D. Oral rehydration solution only

7) Loperamide should be recommended for use in which situation?

A. Traveler's diarrhea caused by *Shigella* spp.

B. Norovirus-associated gastroenteritis

C. *Clostridium difficile*–associated diarrhea

D. Diarrhea caused by enterohemorrhagic *E. coli* O157:H7

8) A pregnant (4 months' gestation) female has recently returned from visiting India, and has been diagnosed with cholera. What is the best choice for her therapy?

A. Oral rehydration therapy (ORT) alone

B. ORT plus doxycycline 300 mg orally single dose

C. ORT plus erythromycin 250 mg orally every 8 hours for 3 days

D. ORT plus ciprofloxacin 500 mg orally twice daily for 3 days

9) An 18-year-old female developed *E. coli*–associated food poisoning at a summer picnic. What category is the most common diarrheagenic form of *E. coli*?

A. Enterotoxigenic *E. coli* (ETEC)

B. Enteroinvasive *E. coli* (EIEC)

C. Enteropathogenic *E. coli* (EPEC)

D. Enterohemorrhagic *E. coli* (EHEC)

10) An adult patient was treated for *C. difficile*–associated diarrhea with metronidazole 250 mg orally for 10 days. Fourteen days following the conclusion of therapy, diarrhea resumes, and *C. difficile* toxin is again identified in stool samples. What is the most appropriate therapy at this time?

A. Vancomycin 125 mg IV four times daily for 10 days

B. Metronidazole 500 mg IV four times daily for 10 days

C. Metronidazole 250 mg orally four times daily for 10 days

D. Fidaxomicin 200 mg orally twice daily for 10 days

11) *Salmonella enterica* serotype Typhi was identified from blood cultures in an acutely ill adult patient. What is the most appropriate empiric therapy for this patient until susceptibility testing results are available?

A. Chloramphenicol 50 mg/kg IV every 6 hours

B. Trimethoprim–sulfamethoxazole DS tablet orally every 12 hours

C. Ciprofloxacin 500 mg orally twice daily

D. Erythromycin 500 mg orally twice daily

12) Which foodborne pathogen has a peak incidence of infection during the winter months?

A. *Salmonella*

B. *Clostridium perfringens*

C. *Campylobacter*

D. *Shigella*

13) Which of the following is an appropriate preventative measure to recommend for traveler's diarrhea?

A. Bismuth subsalicylate 524 mg orally four times daily

B. Trimethoprim–sulfamethoxazole DS orally twice daily

C. Ciprofloxacin 500 mg orally twice daily

D. Rifaximin 200 mg orally once daily

14) A 20-year-old male traveling in central Mexico experiences one episode of watery diarrhea in the evening of his second day of travel. He has no other symptoms. What is the most appropriate recommendation for treatment of the diarrhea?

A. Oral rehydration therapy (ORT)

B. Loperamide

C. Ciprofloxacin

D. Loperamide plus ciprofloxacin

15) A 35-year-old female develops symptoms of food poisoning 6 hours after attending a summer picnic. Her husband telephones your pharmacy and asks for recommendations of antibiotics and antiperistaltic agents. What is the most appropriate recommendation?

A. Loperamide is appropriate; antibiotics are unnecessary.

B. Ciprofloxacin is appropriate; antiperistaltic agents are unnecessary.

C. Trimethoprim–sulfamethoxazole is appropriate; antiperistaltic agents are unnecessary.

D. Ciprofloxacin and loperamide are appropriate.

Chapter 92 - Intraabdominal Infections

1) Which of the following would be considered a secondary intraabdominal infection?

A. A patient with small bowel obstruction and peritonitis after receiving chemotherapy

B. Peritonitis in a patient undergoing peritoneal dialysis

C. A cirrhotic patient who is diagnosed with spontaneous bacterial peritonitis

2) True or false. Perforation of the stomach results in the release of large numbers of anaerobic and aerobic bacteria into the peritoneum.

A. True

B. False

3) In patients with primary peritonitis, bacteria may enter the abdomen via all of the following routes, except:

A. Through a cerebrospinal–peritoneal shunt

B. Through the damage done to the GI tract by blunt trauma

C. Through the bloodstream when there is no damage to the GI tract

D. Through a peritoneal dialysis catheter

4) True or false. Secondary bacterial peritonitis is often caused by multiple organisms, whereas primary intraabdominal infections are often caused by a single organism.

A. True

B. False

5) The most important component of treatment of a perforated appendix is

A. Using the best antimicrobial regimen

B. Aggressive IV fluid therapy

C. A surgical procedure, including drainage and repair

D. Enteral nutrition supplementation

6) A patient presents with an abscess in the abdomen, most likely associated with a perforated diverticulum in the colon. Which of the following would be the most appropriate initial antimicrobial regimen?

A. Ceftriaxone plus metronidazole

B. Clindamycin

C. Ampicillin–sulbactam

D. Gentamicin plus metronidazole

7) Identify the incorrect statement regarding complicated healthcare-associated intraabdominal infections in adults

A. Microbiologic results and the patient's history of infecting organisms should guide empiric antibiotic therapy

B. Ampicillin–sulbactam is appropriate for the treatment of complicated healthcare-associated intraabdominal infections

C. Piperacillin–tazobactam is appropriate for the treatment of complicated healthcare-associated intraabdominal infections

D. Ertapenem is appropriate for the treatment of complicated healthcare-associated intraabdominal infections

8) Which of the following statements is false?

A. Antimicrobial regimens for secondary intraabdominal infections should cover a broad spectrum of aerobic and anaerobic bacteria

B. Antimicrobial treatment of acute bacterial contamination after trauma to the GI tract is adequately treated with an antianaerobic cephalosporin

C. Most patients should not complete their antimicrobial regimen orally after an uncomplicated secondary intraabdominal infection

D. Four to seven days of antimicrobial treatment is typically adequate for intraabdominal infections with adequate source control

9) A 23-year-old woman in good health is determined to have a perforated appendix. Which of the following is the best antimicrobial regimen for this patient?

A. Cefazolin

B. Ceftriaxone plus metronidazole

C. Gentamicin

D. Trimethoprim–sulfamethoxazole

10) The most reasonable initial intraperitoneal empiric antimicrobial therapy for a 46-year-old male patient with peritonitis and a history of immediate hypersenstivity reaction to penicillin is

A. Cefazolin plus ceftazidime (LD 500 mg/L, MD 125 mg/L for each)

B. Cefepime (LD 500 mg/L, MD 125 mg/L)

C. Vancomycin (LD 1,000 mg/L, MD 25 mg/L) plus tobramycin (LD 8 mg/L, MD 4 mg/L)

D. Metronidazole (LD 250 mg/L, MD 50 mg/L)

11) True or false. A regimen active against enteric Gram-negative pathogens and anaerobes is required for treatment of acute bacterial contamination after abdominal trauma when the patient is seen within 2 hours of injury.

A. True

B. False

12) Which of the following statements is true concerning the antimicrobial treatment of appendicitis?

A. A treatment course of 14 days is recommended if the appendix is inflamed but not perforated at the time of surgery

B. An antianaerobic cephalosporin such as cephalothin is a reasonable preoperative antimicrobial

C. The patient should receive a 10-day course of trimethoprim–sulfamethoxazole

D. A treatment course of 4 to 7 days is recommended if the appendix is perforated at the time of surgery

13) True or false. With a secondary intraabdominal infection, anaerobic culture information is not crucial for initial selection of the antianaerobic component of the antimicrobial regimen.

A. True

B. False

14) The appropriate duration of antimicrobial treatment for acute contamination of the abdomen without established infection is:

A. 24 hours or less

B. 10 days

C. 3 days

D. 4–7 days

15) True or false. Empiric coverage of Enterococcus spp. is recommended in patients with mild-to-moderate complicated intraabdominal infections?

A. True

B. False

Chapter 93 - Parasitic Diseases

1) AT is a 17-year old, 3-week pregnant resident of San Diego, who returns from Mexico and presents in the Infectious Disease clinic of a local hospital with severe abdominal cramps, blood-streaked diarrhea with mucus. She is afebrile but has moderate leukocytosis. The primary diagnosis by antigen testing is *E. histolytica*. Select the correct therapy for this patient:

A. Chloroquine phosphate 500 mg every 6 hours × 10 days

B. Nitazoxanide 500 mg twice daily for 7 to 10 days

C. Iodoquinol 650 mg three times daily × 20 days

D. Paromomycin 25 to 35 mg/kg/day in divided doses for 7 days

E. Tinidazole 2 g once daily for 5 days

2) In order to identify *E. histolytica* from the nonpathogenic *E. dispar* and *E. moshkovskii*, the diagnostic test of choice would be:

A. The OptiMAL antigen test

B. Collection of six stool samples for Ova and Parasite (O&P)

C. An enzyme-linked immunosorbent assay (ELISA) test

D. Histidine Rich protein 2

E. Schaudinn's fixture

3) One of the following drug regimens may be used to treat an asymptomatic cyst passer with a diagnosis of *E. histolytica*:

A. Iodoquinol 650 mg three times daily for 7 days

B. Diloxanide furoate 300 mg twice daily for 5 days

C. Chloroquine 500 mg three times daily × 4 days

D. Tinidazole 2 g × 1 dose

E. Paromomycin 10 to 25 mg/kg/day in divided doses for 7 days

4) A 10-year old elementary school child is diagnosed with the roundworm, *Ascaris lumbricoides*. Indicate the drug and regimen of choice for this patient:

A. Albendazole 400 mg once daily

B. Mebendazole 200 mg daily × 2 days

C. Pyrantel pamoate 10 to 25 mg/kg twice daily × 3 days

D. Albendazole 200 mg twice × 2 days

E. Mebendazole 100 mg twice daily × 5 days

5) AY is a 47-year Asian male immigrant candidate for liver transplant. Identify the *incorrect* statement:

A. He should be pretested for *Strongyloides stercoralis*

B. He may be at risk for disseminated *S. stercoralis* if exposed to cyclosporine therapy

C. Corticosteroid administration should not impose a problem

D. A is correct statement

E. C is a correct statement

6) LL is a 52-year old recent immigrant of Columbia who has been diagnosed with neurocysticercosis. *Taenia solium* cysts are found to be located in the basal meninges and in the fourth ventricles by magnetic resonance imaging (MRI). The following are all reported complications of neurocysticercosis:

A. Seizures

B. Obstructive hydrocephalus

C. Stroke

D. A and B

E. All the above

7) Treatment of the above patient with neurocysticercosis due *T. solium* cysts may include antiseizure drugs, corticosteroids, and antihelminthic therapy. The suggested antihelminthic drug is albendazole and the regimen is:

A. Albendazole 200 mg twice for 5 to 10 days

B. Albendazole 400 mg daily for 8 to 30 days

C. Albendazole 400 mg twice daily for 8 to 30 days

D. Albendazole 200 mg twice daily for 8 to 60 days

E. Albendazole 800 mg twice daily for 30 days

8) Severe falciparum malaria requires a patient to be admitted to an acute care unit and treated with IV quinidine gluconate. However, when IV quinidine is not readily available for this life-threatening condition, an alternative agent available from CDC should be utilized. This alternative agent and the dosing regimen is:

A. IV quinine 40 mg/kg in 5% dextrose to be infused over 2 hours every 8 hours for 3 days

B. IV artesunate 2.4 mg/kg/dose IV at 0, 12, 24, 48, and 72 hours

C. IV chloroquine phosphate 1 g (600 mg base) every 6 hours × 3 days

D. IV doxycycline 100 mg every 12 hours × 5 days

E. IV ciprofloxacin 400 mg every 12 hours for 5 days

9) A 62-year-old native of Cambodia presented at the emergency department at a hospital with 48 hours of fever, rigor, nausea and vomiting, severe headache, and confusion, 5 days after arriving from his native country. Two thick blood smears separated by 12 hours, demonstrated *Plasmodium falciparum* malaria. Severe falciparum malaria is associated with the following complications:

A. Cardiomyopathy

B. Jaundice and pulmonary edema

C. Confusion and delirium

D. A and B

E. B and C

10) The following parameters should be monitored after initiating IV quinidine therapy in a patient:

A. Electrocardiogram and vital signs

B. Fluid status and hypoglycemia

C. Renal function status

D. All the above

E. A and B

11) RT is a 71-year Mexican man who has lived in California for the last 25 years and makes frequent trips to Guadalajara to visit his sisters. Two days ago after he returns from 3-week trip, he began complaining of shortness of breath, low-grade fever, GI distress including nausea, and vomiting. Following a battery of tests, he is subsequently diagnosed with Chagas' disease (*Trypanosoma cruzi*). The cardiovascular complications reported with *T. cruzi* infection include all these *except*:

A. First-degree heart block

B. Cardiomyopathy

C. Ventricular tachycardia and other arrhythmias

D. A and B but not C

E. A, B, and C

12) A new alternative agent for *Pediculosis capitis* for head lice which is equally effective as permethrin 1% is:

A. 0.1% malathion

B. Spinosad 0.9% crème rinse

C. Crotamiton 10%

D. Lindane

E. None of the above

13) Patients with scabies who do not respond readily to permethrin 5% application should *also* receive:

A. Ivermectin

B. Albendazole

C. Benzyl alcohol

D. Application of sulfur

E. Small doses of glucocorticosteroids

14) The neuropsychiatric side effects of concern with mefloquine include all these *except*:

A. Seizures

B. Strokes

C. Psychosis

D. Sleep disturbances

E. Anxiety

15) The recommended drug regimen for hepatic complication of *E. histolytica* is:

A. Iodoquinol 650 mg three times daily for 20 days and Tinidazole 2 g × 1 dose

B. Iodoquinol 650 mg three times daily for 20 days and Tinidazole 2 g daily × 5 days

C. Metronidazole 750 mg three times daily × 10 days and paromomycin 25 to 35 mg/kg in divided doses × 7 days

D. A or C

E. B or C

Chapter 94 - Urinary Tract Infections and Prostatitis

1) Which of the following is the most probable reason females will experience at least one urinary tract infection (UTI) in their lifetime?

A. Increase bacteria in their GI tract

B. Their tendency to take baths more often than males

C. Their anatomical predisposition

D. Increased use of antibiotics in their younger years

2) Which of the following organisms is the most predominant organism causing uncomplicated cystitis?

A. *Pseudomonas aeruginosa*

B. *Escherichia coli*

C. *Enterococcus faecalis*

D. *Staphylococcus saprophyticus*

3) Which of the following patients is most likely to have an uncomplicated cystitis infection?

A. A 40-year-old female with diabetes

B. A 65-year-old healthy male

C. A 22-year-old healthy female

D. A 10-year-old female with a history of vesicoureteral reflux

4) Organisms can most often gain entry into the urinary tract via all of these pathways except:

A. Hematogenous spread

B. Lymphatic spread

C. Ascending route into bladder

D. Translocation from intestines

5) Which of the following would be the most common predisposing factor for the development of recurrent UTIs in an otherwise healthy 28-year-old female?

A. Sexual intercourse

B. Irritable bowel syndrome

C. Birth control pills

D. Type of toilet paper used

6) Altered mental status, change in eating habits, or GI symptoms as opposed to typical manifestations of UTIs are frequently seen in which patient population?

A. Children

B. Elderly

C. Pregnant females

D. Males

7) Which of the following methods of urine collection is the least likely to be contaminated?

A. Midstream catch

B. Urine catch using the first 20 to 30 mL of urine flow

C. Catheterization

D. Suprapubic bladder aspiration

8) Which of the following results is considered a significant number of bacteria for the diagnosis of a UTI?

A. $>10^5$ bacteria/HPF

B. 30,000 bacteria

C. $>10^5$ bacteria/mL ($>10^8$/L)

D. 10^7 bacteria/mL (10^{10}/L)

9) A urine dipstick comes back positive for nitrite, leukocyte esterase, protein, and blood in the urine. Which of the results is most indicative of a UTI?

A. Nitrite positive

B. Leukocyte esterase positive

C. Positive protein

D. Positive blood

10) Based off of the 2010 IDSA Guidelines, which of the following regimens would be the most appropriate treatment for uncomplicated UTIs?

A. Nitrofurantoin 100 mg orally two times/day for 5 days

B. Ciprofloxacin 500 mg orally two times/day for 3 days

C. Amoxicillin 500 mg orally four times/day for 3 days

D. Trimethoprim–sulfamethoxazole double strength, one tablet orally, one dose

11) Which of the following regimens would be the most appropriate treatment for a seriously ill patient with acute pyelonephritis?

A. Trimethoprim–sulfamethoxazole double strength, one tablet orally two times/day for 3 days

B. Ciprofloxacin 500 mg orally two times/day for 3 days

C. Levofloxacin 500 mg orally, one dose

D. Cipofloxacin 400 mg IV two times/day for 3 days, followed by 500 mg orally two times/day for 11 days

12) Which of the following statements is most correct regarding recurrent UTIs?

A. The recurrence is mostly likely due to a relapse from the previous infection

B. If possible, catheterize the patient and instill antibiotics for optimum treatment in men

C. One-half of a single-strength trimethoprim–sulfamethoxazole tablet may be used on a daily basis

D. Men are immune to UTI recurrence due to the immune effects of prostatic fluid

13) The course of antibiotic therapy for acute prostatitis is:

A. 2 to 4 weeks

B. 1 day

C. 3 days

D. 7 to 10 days

14) Which of the following therapies should be reserved for patients with suspected pyelonephritis or resistant infections?

A. Amoxicillin

B. Levofloxacin

C. Trimethoprim–sulfamethoxazole

D. Nitrofurantoin

15) Which of the following regimens would be the treatment of choice in a female patient with uncomplicated cystitis in a geographical area with greater than 20% resistance to trimethoprim–sulfamethoxazole?

A. Amoxicillin 500 mg orally two times/day for 3 days

B. Nitrofurantoin 100 mg orally two times/day for 3 days

C. Trimethoprim–sulfamethoxazole 1 DS tablet orally two times/day for 3 days

D. Fosfomycin 3 g orally once

Chapter 95 - Sexually Transmitted Diseases

1) The greatest risk factor for contracting a sexually transmitted disease (STD) is

A. Practice of unprotected anal–genital intercourse

B. Practice of unprotected anal–oral intercourse

C. Practice of unprotected oral–genital intercourse

D. Number of sexual partners

E. Illicit drug use

2) The CDC recommends that a penicillin-allergic pregnant patient with a diagnosis of primary syphilis should be treated with

A. Azithromycin

B. Doxycycline

C. Erythromycin

D. Ofloxacin

E. None of the above

3) Neonatal infections caused by which of the following can result in severe neurological impairment

A. *N. gonorrhoeae*

B. *C. trachomatis*

C. *T. vaginalis*

D. Herpes simplex virus

E. Human papillomavirus

4) Which of the following is (are) true regarding the use of nucleic acid amplification tests (NAATs) in the diagnosis of gonorrhea?

A. Can test for *N. gonorrhoeae* and *C. trachomatis* using a single specimen

B. Can provide a diagnosis of gonorrhea using noninvasive specimens such as urine samples

C. Can provide information on antibiotic resistance in diagnosed strains of *N. gonorrhoeae*

D. A and B only

E. A, B, and C

5) Which of the following regimens does not consistently eradicate *C. trachomatis* genital infections?

A. Ofloxacin 300 mg twice a day for 7 days

B. Ciprofloxacin 500 mg orally twice a day for 7 days

C. Azithromycin 1 g orally as a single dose

D. Doxycycline 100 mg orally twice a day for 7 days

E. Erythromycin base 500 mg orally four times a day for 7 days

6) Which of the following is (are) the recommended treatment for neonatal gonococcal ophthalmia?

A. Silver nitrate ophthalmic solution

B. Erythromycin ophthalmic solution

C. Tetracycline ophthalmic solution

D. Ceftriaxone

E. A, B, and C

7) The presence of which of the following STDs increases a person's susceptibility for contracting HIV from an infected sexual partner?

A. Genital herpes

B. Chlamydia

C. Syphilis

D. Trichomoniasis

E. All of the above

8) Of the following treatment regimens, which is (are) recommended by the CDC for treating a patient with trichomoniasis who fails treatment with metronidazole 2 g orally as a single dose and reinfection has been excluded?

A. Tinidazole 2 g orally as a single dose

B. Metronidazole 500 mg orally twice a day for 7 days

C. Metronidazole 2 g orally for 3 to 5 days

D. A and B only

E. A, B, and C

9) Which of the following statements regarding genital herpes infection is false?

A. Most genital infections are caused by HSV-1

B. Clinical manifestations of infection can occur within 2 days following exposure

C. Asymptomatic viral shedding is considered the most important source of transmission

D. Widely available nonspecific serologic assays for detecting HSV antibodies have limited usefulness in the diagnosis of genital herpes

E. The risk of transmission during birth appears to be much greater for first-episode rather than for recurrent infections

10) Ophthalmia neonatorum can result from exposure to

A. *C. trachomatis*

B. *T. vaginalis*

C. *T. pallidum*

D. A and B only

E. A, B, and C

11) A false-positive VDRL slide test or RPR card test for syphilis can occur in patients who have

A. Chronic infections

B. Autoimmune diseases

C. Malignancies

D. A and B only

E. A, B, and C

12) Which of the following statements regarding the management of recurrent genital herpes infections is (are) true?

A. Symptoms of recurrent infections are generally milder and of shorter duration than those of primary episodes

B. In most patients treated with episodic therapy administered within 48 hours of symptom onset, appreciable effects on symptomatology are not seen

C. Daily suppressive therapy with acyclovir, famciclovir, or valacyclovir has been shown to reduce viral shedding and decrease the risk of disease transmission by almost 100%

D. A and B

E. A, B, and C

13) Which of the following statement regarding trichomoniasis is (are) true?

A. Nonvenereal transmission of trichomoniasis is possible

B. The majority of infected men are asymptomatic

C. Infection during pregnancy can result in preterm labor and delivery

D. Wet-mount specimen examination is less sensitive in diagnosing infections in males than in females

E. All of the above are true

14) Which of the following is associated with possible development of pelvic inflammatory disease?

A. Syphilis

B. Genital herpes infection

C. Trichomoniasis

D. Genital chlamydial infection

E. None of the above

15) The CDC recommends that sexually active adolescent females undergo annual screening for which of the following?

A. Gonorrhea

B. Chlamydia

C. Syphilis

D. Genital herpes

E. None of the above

Chapter 96 - Bone and Joint Infections

1) What is the most frequent type of osteomyelitis?

A. Hematogenous disease

B. Contiguous spread disease

C. Chronic disease

D. Vascular disease

2) Infectious arthritis most commonly involves how many joints?

A. One

B. Two

C. Three

D. Four

3) Hematogenous osteomyelitis most commonly occurs in what age group?

A. Adults over 50 years of age

B. Adults between 18 and 50 years of age

C. Children under 16 years of age

D. Neonates

4) The most common age group of osteomyelitis patients to develop joint infections are the following:

A. Adults over 50 years of age

B. Adults between 18 and 50 years of age

C. Children under 16 years of age

D. Neonates

5) What is the most common organism causing hematogenous osteomyelitis?

A. *Pseudomonas aeruginosa*

B. *Haemophilus influenzae*

C. *Staphylococcus aureus*

D. Group B streptococcus

6) What is a true characteristic of the organisms causing osteomyelitis in patients with diabetes mellitus?

A. Anaerobic organisms are most common

B. Multiple organisms are most common

C. Enterobacteriaceae are most common

D. *Enterococcus* is most common

7) What is the most frequent type of infectious arthritis?

A. Hematogenous

B. Contiguous spread disease

C. Chronic disease

D. Vascular disease

8) All of the following are risk factors to develop infectious arthritis *except*

A. Joint trauma

B. IV drug abuse

C. Preexisting arthritis

D. Urinary tract infections

9) What is the most common organism causing adult nongonococcal bacterial arthritis?

A. *Streptococcus*

B. *S. aureus*

C. *P. aeruginosa*

D. *Escherichia coli*

10) What would be a useful monitoring strategy for a patient with osteomyelitis?

A. Weekly C-reactive protein

B. Daily C-reactive protein

C. Daily white blood cell count

D. Six-month erythrocyte sedimentation rate

11) Of the following cultures, which source would be the most trusted in determining the etiology of osteomyelitis?

A. Sinus tract culture

B. Skin ulcer culture

C. Urinary tract culture

D. Metaphyseal fluid culture

12) In children with osteomyelitis, failure rates have been shown to be the lowest with what duration of antibiotic therapy?

A. One week

B. Two weeks

C. Three weeks

D. Four weeks

13) The most important criterion when selecting a patient with osteomyelitis for oral antibiotic therapy is the following:

A. Clinical response to their parenteral antibiotic

B. Use of bactericidal titers

C. Presence of a central line

D. Presence of bone pain

14) Oral ciprofloxacin for osteomyelitis would be most likely to *fail* with which infecting organism?

A. *Serratia marcescens*

B. *S. aureus*

C. *Enterobacter cloacae*

D. *E. coli*

15) What is the preferred empiric antibiotic regimen for a 7-year-old boy with hematogenous osteomyelitis?

A. IV ampicillin

B. Oral ciprofloxacin

C. IV nafcillin

D. IV daptomycin

Chapter 97 - Severe Sepsis and Septic Shock

1) Regarding the common pathogens in sepsis and septic shock, which of the following statements is correct?

A. Since the late 1970s, gram-negative organisms continued to be the predominant pathogens

B. *Staphylococcus aureus*, *Streptococcus pneumoniae*, and coagulase-negative staphylococci are the common gram-positive pathogens

C. *Escherichia coli* is the most frequent cause of sepsis fatality

D. Non-albicans *Candida* species have become the most common causes of fungal sepsis

2) The following mediators are proinflammatory *except*:

A. TNF-α

B. IL-6

C. IL-8

D. Activated protein C

3) Complication associated with sepsis is:

A. Persistent hypotension

B. Disseminated intravascular coagulation

C. Acute respiratory distress syndrome

D. Acute renal failure

E. All of the above

4) The preferred treatment option for a 56-year-old male with community-acquired pneumonia who was recently prescribed azithromycin for sinusitis is:

A. Ertapeneme

B. Moxifloxacin

C. Amoxicillin

D. Doxycycline

E. Clarithromycin

5) The following treatment regimen is preferred in the case of nosocomial pneumonia with a suspicion of *Pseudomonas aeruginosa*:

A. Levofloxacin

B. Ceftazidime plus azithromycin

C. Piperacillin plus gentamicin

D. Ceftriaxone plus levofloxacin

E. Vancomycin plus ertapenem

6) Which of the following agents used against methicillin-resistant *S. aureus* is *incorrectly* matched with a clinically significant adverse reaction?

A. Vancomycin—nephrotoxicity

B. Linezolid—neutropenia

C. Quinupristin/dalfopristin—myalgia

D. Daptomycin—hyperbilirubinemia

7) Polymicrobial infections such as secondary peritonitis can be treated with the following agents *except*:

A. Ceftazidime and gentamicin

B. Piperacillin/tazobactam

C. Ampicillin plus gentamicin plus metronidazole

D. Meropenem

E. Ciprofloxacin plus metronidazole

8) Early goal-directed therapy when resuscitating a patient in severe sepsis or sepsis-induced tissue hypotension involves:

A. Venous catheter placement

B. Large volume of fluid

C. Red blood cell transfusion

D. Dobutamine therapy

E. All of the above

9) The preferred agent for a 37-year-old male with an advanced stage of AIDS and candidemia is:

A. Imipenem

B. Amphotericin B deoxycholate

C. Itraconazole

D. Piperacillin/tazobactam

E. Ketoconazole

10) Regarding hemodynamic support, which of the following agent is the best initial therapeutic intervention?

A. 5% albumin

B. Lactated ringer solution

C. Normal saline

D. Norepinephrine

E. Dopamine

11) Dopamine affects the following receptors *except*:

A. α_1

B. α_2

C. β_1

D. β_2

12) Invasive candidiasis can be treated with the following agents *except*:

A. Fluconazole

B. Voriconazole

C. Caspofungin

D. Amphotericin B deoxycholate

E. Itraconazole

13) Which of the following agents is effective against *Candida glabrata*?

A. Fluconazole

B. Voriconazole

C. Itraconazole

D. Ketoconazole

14) Patients are at an increased risk of bleeding if:

A. Concurrent therapeutic heparin

B. Platelet count of <30,000/mm^3 (<30 × 10^9/L)

C. Recent history of GI bleed

D. Chronic severe liver disease

E. All of the above

15) Which of the following factors affect the overall prognosis?

A. Advanced age

B. One or more organ failure

C. Positive blood culture of *Pseudomonas aeruginosa*

D. Elevated lactate level

E. All of the above

Chapter 98 - Superficial Fungal Infections

1) The majority of vulvovaginal candidiasis (VVC) infections are caused by

A. *Candida glabrata*

B. *Candida krusei*

C. *Candida albicans*

D. *Candida tropicalis*

2) Which of the following is considered a risk factor for VVC?

A. Wearing loose-fitting clothes

B. Excess intake of fatty foods

C. Using harsh soaps

D. Using hormone replacement therapy

3) A woman who suffers from recurrent VVC is likely to have which one of these underlining medical conditions?

A. Diabetes mellitus

B. Epilepsy

C. Hypertension

D. Angina

4) Blastospores in *Candida* organisms are believed to be responsible for

A. Invasion of epithelial tissue

B. Spread of the organism

C. Recognition of epithelial receptors

D. Causing symptomatic VVC infection

5) The following drug would be the preferred choice of treatment for VVC for a woman who is 11 weeks pregnant:

A. Fluconazole 150 mg tablet for 1 day

B. Nystatin 100,000 units for 14 days

C. Miconazole 100 mg suppository for 7 days

D. Ticonazole 2% cream 1 applicator for 3 days

6) Which of the following non–*Candida albicans* species can cause oropharyngeal candidiasis?

A. *C. glabrata*

B. *C. tropicalis*

C. *C. krusei*

D. All of above

7) In patients infected with human immunodeficiency virus (HIV), which of the following is likely to be the first clinical manifestation of being infected.

A. Onychomycosis

B. Vulvovaginal candidiasis (VVC)

C. Oropharyngeal candidiasis (OPC)

D. Tinea pedis

8) In HIV disease, oral carriage of yeast and risk of mucosal invasion increase with

A. Decrease in CD4 cell count

B. Increase in CD4 cell count

C. Decrease in red blood cell count

D. Decrease in white blood cell count

9) What is the preferred therapy in an HIV-infected patient with OPC and concurrent esophageal involvement?

A. Nystatin solution 5 mL swish and swallow four times daily for 7 to 14 days

B. Miconazole 50 mg mucoadhesive buccal tablets once daily for 7 to 14 days

C. Fluconazole 400 mg tablets once daily for 14 to 21 days

D. Clotrimazole 10 mg troche 1 troche four times daily for 7 to 14 days

10) In a patient with OPC who is unresponsive to fluconazole, which one of the following options is appropriate to try next?

A. Itraconazole 200 mg capsule daily

B. Amphotericin B deoxycholate IV 0.3 mg/kg per day

C. Voriconazole 400 mg twice daily

D. None of the above

11) Which of the following is the most appropriate advice to provide when counseling a patient with OPC?

A. For denture-related oral candidiasis, remove and disinfect the dentures overnight with chlorhexidine 0.2%.

B. Clotrimazole lozenge should be slowly dissolved in mouth, not chewed or swallowed whole, over at least 1 minute and the saliva swallowed.

C. Take itraconazole solution on an empty stomach.

D. Discontinue treatment as soon as symptoms have disappeared.

12) Which one of the following statements is *true*?

A. Tinea pedis can be referred to as jock itch.

B. Tinea corporis can be treated with ciclopirox.

C. Athlete's foot is commonly contracted during cold weather.

D. Tinea capitis is a mycotic infection involving the scalp.

13) An infection with tinea barbae can be treated with which one of the following?

A. Itraconazole 200 mg/day for 3 to 7 days

B. Itraconazole 200 mg/day for 1 week

C. Itraconazole 200 mg/day for 1 to 4 weeks

D. Itraconazole 200 mg/day for 1 to 4 weeks

14) Which one of the following statements is correct regarding the treatment of onychomycosis?

A. Because of the low efficacy rates of nail lacquers (amorolfine and ciclopirox), these agents do not have any role in the treatment of onychomycosis.

B. Fluconazole is the accepted first-line agent because it has a better tolerance and drug interaction profile.

C. Itraconazole pulse therapy is preferred over continuous dosing for fingernail infections.

D. An advantage of terbinafine is that pulse dosing is as effective as continuous daily dosing and also has fewer side effects.

E. The best cure rate for fingernail onychomycosis is achieved with the use of a combination of topical and systemic agents.

Chapter 99 - Invasive Fungal Infections

1) In vitro susceptibility testing of antifungal agents:

A. Is standardized and available at most hospital clinical microbiology laboratories

B. Is not well standardized, and must be interpreted cautiously

C. Can alert the clinician to the presence of azole-resistant species of *Candida*

D. Rely on the use of high temperatures and long incubation times, in order to induce hyphal formation

E. Should be performed in all patients in order to assess the appropriateness of the antifungal agent utilized and to monitor for the development of resistance during therapy.

2) The in vitro spectrum of activity of echinocandins:

A. Includes typical pathogens encountered in the immunosuppressed patient, including *Pseudomonas aeruginosa* and methicillinresistant *Staphylococcus aureus*

B. Includes emerging fungal pathogens such as *Fusarium* and *Cryptococcus neoformans*

C. May differ for various *Candida* species, depending on whether the mycelial or the yeast form of the pathogen is utilized in testing

D. Includes many pathogenic fungi encountered in the immunosuppressed patient, including *C. albicans* and *Aspergillus* species

E. Has demonstrated the rapid emergence of resistant strains of *Candida albicans* in patients receiving >2-week therapy

3) SM is a 34-year-old woman currently being treated with voriconazole for invasive pulmonary aspergillosis caused by *Aspergillus fumigatus*. She develops a skin rash, which you believe is due to voriconazole. Which of the following statements is *most correct* regarding appropriate antifungal therapy for SM?

A. An echinocandin should *not* be utilized, as its chemical structure is similar to that of azole antifungal agents such as fluconazole

B. Therapy with an echinocandin (caspofungin or micafungin) is unlikely to cause a rash in this patient, as echinocandins are chemically unrelated to azole antifungal agents

C. Micafungin should *not* be utilized as an alternative agent in this patient, as it demonstrates poor in vitro and in vivo activity against *A. fumigatus*

D. Caspofungin could be utilized as an alternative agent in SM, as it demonstrates excellent in vitro and in vivo activity against *A. fumigatus*; however, SM is likely to experience a rash due to cross sensitivity between azoles and echinocandin antifungals

E. Micafungin would *not* be an appropriate alternative agent in this patient, as it demonstrates very poor efficacy in the treatment of pulmonary aspergillosis

4) Blastomycosis is often mild and self-limited and may not require treatment. However, consideration should be given to treating which of the following infected individuals to prevent extrapulmonary dissemination?

A. All individuals with moderate to severe pneumonia

B. HIV-infected individuals

C. Individuals who are immunocompromised

D. Patients who have undergone hematopoietic stem cell transplantation

E. All of the above

5) RH is a 68-year-old male who is 3 weeks status posthematopoietic stem cell transplantation. As his most recent chest radiograph indicates that he has invasive pulmonary aspergillosis that appears unresponsive to his current therapy with liposomal amphotericin B, his physician wishes to place RH on combination therapy with amphotericin B and caspofungin. Which of the following statements is *most correct* regarding RH's echinocandin therapy?

A. As RH's amphotericin B regimen has resulted in an elevated serum creatinine, his caspofungin dosage may need to be decreased, as caspofungin is eliminated primarily via the kidneys

B. The usual IV dosage of caspofungin should be decreased in this patient, as caspofungin clearance is decreased in elderly patients

C. The usual IV dosage of caspofungin may require an increase or decrease, based on the patient's current renal or hepatic function

D. IV administration of 50 or 70 mg daily dosages of caspofungin in this patient would be expected to result in proportionally higher plasma concentrations

E. Combination therapy with caspofungin and amphotericin B is not recommended, as there is a pharmacodynamic interaction between the two agents

6) When assessing infections caused by *Candida* species:

A. Crude and attributable mortality remains high, in the range of 10% to 20%, respectively, despite the introduction of newer antifungal agents

B. Crude and attributable mortality has decreased dramatically in the past 10 years, due to the introduction of newer, more potent antifungal agents

C. The proportion of infections caused by *C. albicans* has increased, while those caused by non-*albicans* species has decreased

D. Resistance to azoles is rare, and does not "cross" to other azoles

E. The clinician should consider alternatives to fluconazole when non-*albicans* species are isolated during or immediately following azole therapy

7) Visual changes observed in patients during voriconazole therapy:

A. Can cause permanent damage to the retina if therapy is continued for >2 weeks

B. Generally do not require discontinuation of the drug

C. Are observed in <1% of patients

D. Do not decrease or disappear despite continued therapy

E. Are not associated with changes in electroretinogram tracings

8) Plasma level monitoring of antifungals …

A. Rarely is necessary unless toxicity is observed

B. Should probably be performed in all patients receiving long-term voriconazole therapy for aspergillosis

C. Probably is needed for fluconazole, voriconazole, posaconazole, and caspofungin because the efficacy and toxicity of these agents correlate with peak levels

D. Is only necessary in patients receiving fluconazole therapy for CNS infections

E. Is not useful for voriconazole since neither efficacy nor toxicity is correlated with plasma concentrations

9) According to current (2009) Infectious Diseases Society of America guidelines, initial antifungal therapy for *Candida* blood stream infections:

A. Is similar for all *Candida* species

B. Should always be initiated with fluconazole, due to its low cost and excellent safety profile

C. Should always be initiated with echinocandins, since resistance rates of *Candida* species to fluconazole are high

D. Should take into consideration whether the patient is unstable or severely immunocompromised, has a history of recent exposure to fluconazole or other azoles, or if non-*albicans* species are suspected

E. Should be initiated recommended in all patients, prior to obtaining positive blood cultures, if they are critically ill and not responding to antibacterial agents

10) All of the following statements regarding fungal disease are correct *except*

A. *Histoplasma capsulatum* exists as mycelial forms at room temperature and yeast forms at body temperature

B. All patients with early coccidioidal infections should be treated aggressively to prevent disseminated disease

C. Blastomycosis often involves skin, bones, joints, and genitourinary tract

D. Histoplasmosis may result in mediastinal fibrosis

E. Pregnant women are at high risk for developing disseminated coccidioidomycosis

11) All of the following are true regarding infections caused by *Candida* species *except*:

A. Infections are associated with a low rate of mortality when appropriate antifungal therapy is promptly initiated as soon as a patient becomes febrile

B. While *C. albicans* remains the most common species causing infection, other species, including *C. glabrata* and *C. parapsilosis*, have become more common

C. The role of antifungal prophylaxis in the surgical ICU remains extremely controversial

D. Prophylactic antifungals are indicated in patients with recurrent intestinal perforations and/or anastomotic leak

E. Alternatives to fluconazole should be considered when patients have a history of recent exposure to fluconazole or other azoles, and when non-*albicans* species are isolated

12) In the treatment of coccidioidal meningitis:

A. Fluconazole 400 mg daily is the drug of choice

B. Must be followed lifelong suppressive therapy

C. Ketoconazole should not be recommended routinely due to its poor CNS penetration

D. May require intrathecal amphotericin B therapy in patients who do not respond to fluconazole or itraconazole

E. All of the above

13) In patients with AIDS who have successfully completed primary therapy, lifelong maintenance therapy to prevent relapse of cryptococcal disease:

A. Is recommended for *all* patients after successful completion of primary induction therapy, with fluconazole 400 mg orally daily

B. Is necessary and recommended for most patients, utilizing a low dosage of fluconazole (200 mg orally daily)

C. The risk of relapse is low provided patients are symptom-free, and are on HAART therapy with a sustained CD4 cell count >100 cells/mL (>100 × 10^3/L) and undetectable viral load

D. Ketoconazole is an effective and cost effective therapy

E. Oral fluconazole 200 mg/day is less effective but better tolerated than IV administration of amphotericin B 1 mg/kg IV weekly

14) Prophylaxis of candidemia:

A. Is recommended in all nonneutropenic patients who are admitted to the ICU

B. Is recommended in neutropenic patients for 1 week prior to and 6 months after they become neutropenic

C. May be indicated in patients with recurrent intestinal perforations and/or anastomotic leaks

D. Should never be utilized since the risk of antifungal resistance is increasing rapidly and our antifungal armamentarium is limited

E. Is unnecessary, since prompt initiation of antifungal therapy in patients with clinical, laboratory, or radiologic surrogate markers of infection results in high rates of clinical success

15) Risk factors for invasive candidiasis include all of the following *except*:

A. Long ICU stay

B. Prior infection with *P. aeruginosa*

C. The use of total parenteral nutrition (TPN)

D. The presence of acute renal failure

E. The presence of central venous catheter

Chapter 100 - Infections in Immunocompromised Patients

1) What is the most important risk factor for development of severe infections in cancer patients?

A. Alteration of normal flora by chemotherapy and antimicrobial therapy

B. Prolonged neutropenia

C. Severe mucositis

D. Humoral and cellular immune system defects

2) The most common bacterial microorganisms causing infections in neutropenic cancer patients are:

A. *Klebsiella pneumonia*

B. *Pseudomonas aeruginosa*

C. Staphylococci and streptococci

D. *Candida* species

3) Which of the following oral antibiotic regimens is/are preferred for managing episodes of febrile neutropenia in low-risk patients?

A. Ciprofloxacin plus amoxicillin/clavulanate

B. Penicillin G plus rifampin

C. Ciprofloxacin plus clindamycin

D. Amoxicillin plus cephalexin

4) In high-risk neutropenic cancer patients who remain febrile despite 2 to 4 days of broad-spectrum parenteral antibiotic therapy, all of the following are potential treatment strategies *except*:

A. Continue initial antibiotic regimen if there has been no change in the patient's condition

B. Modify initial antibiotic regimen if the patient develops progression of signs/symptoms

C. Add antifungal therapy to antimicrobial regimen

D. If specific pathogen(s) are isolated, narrow antibiotic therapy to cover the identified pathogens

5) Which of the following statements regarding antifungal prophylaxis in cancer patients is *false*?

A. Fluconazole prophylaxis has been shown to reduce the incidence of superficial and systemic fungal infections and significantly decrease mortality from fungal infections in patients with leukemia and HSCT

B. Antifungal prophylaxis significantly reduces the incidence of invasive *Aspergillus* infections in patients with febrile neutropenia

C. Use of fluconazole prophylaxis has resulted in emergence of infections caused by azole-resistant strains such as *Candida krusei* and *Candida glabrata*

D. Antifungal prophylaxis for prevention of invasive fungal infections is routinely recommended for all neutropenic cancer patients

6) Patients at risk for *Pneumocystis carinii* infections should receive prophylaxis with:

A. Ciprofloxacin/penicillin

B. Trimethoprim/sulfamethoxazole

C. Acyclovir

D. Fluconazole

7) Which of the following statements regarding initial empiric vancomycin therapy in febrile neutropenic cancer patients is *false*?

A. All initial empiric regimens should contain vancomycin

B. Patients with evidence of IV catheter infections may benefit from initial empiric therapy with vancomycin

C. Decreased mortality from penicillin-resistant viridans streptococcal infections has been observed with initial empiric vancomycin therapy

D. If empiric vancomycin therapy is initiated and no evidence of gram-positive infection is found after 24 to 48 hours, vancomycin should be discontinued

8) All of the following are measures directed at prevention of infectious complications in neutropenic cancer patients *except*:

A. Meticulous hand washing

B. Reverse isolation

C. Systemic antimicrobial prophylaxis regimens

D. Granulocyte transfusions

9) All of the following infections would be anticipated during the immediate period (approximately 1 month) after lung transplantation *except*:

A. Surgical wound infections

B. Pneumonia

C. Cytomegalovirus (CMV) disease in a patient who was CMV-seronegative before transplantation

D. Reactivation of herpes simplex virus (HSV) infection in a patient who was HSV-seropositive before transplantation

10) Patients undergoing hematopoietic stem cell transplantation (HSCT) are at significant risk for infection in all of the following scenarios except:

A. Primary or recurrent varicella zoster virus infection in a patient with graft-versus-host disease

B. CMV infection in a CMV-seronegative recipient receiving stem cell donations from a CMV-seropositive donor

C. *Candida* or *Aspergillus* infections in patients receiving allogeneic stem cell transplants

D. All of the above

11) Patients undergoing HSCT are routinely recommended to receive all of the following vaccinations *except*:

A. *Haemophilus influenzae* type B vaccine

B. Hepatitis A vaccine

C. 23-valent pneumococcal vaccine

D. Influenza vaccine

12) Which of the following types of antimicrobial prophylaxis is *not* routinely recommended in patients undergoing solid organ transplantation (SOT)?

A. Antifungal therapy for prevention of invasive fungal infections in renal transplant patients

B. Perioperative antibacterials for prevention of postoperative wound infections

C. Trimethoprim/sulfamethoxazole for prevention of *P. carinii* infection

D. Ganciclovir or acyclovir in patients at highest risk for CMV disease

13) Which of the following antifungal regimens would be most appropriate for prophylaxis of invasive candidiasis in a patient undergoing liver transplantation?

A. Lipid-associated amphotericin B 1 mg/kg IV once daily

B. Fluconazole 400 mg IV or orally once daily

C. Micafungin 50 mg IV once daily

D. All of the above

14) An appropriate regimen for the treatment of confirmed invasive pulmonary aspergillosis in a patient undergoing SOT would be:

A. Caspofungin 70 mg IV × one dose, followed by 50 mg IV once daily

B. Liposomal amphotericin B 5 mg/kg IV once daily

C. Voriconazole 6 mg/kg IV twice daily × two doses, followed by 4 mg/kg IV twice daily

D. All of the above

15) A 45-year-old female undergoes HSCT for advanced metastatic breast cancer and develops CMV disease 2 months after transplantation. She is started on ganciclovir 5 mg/kg IV every 12 hours. The most important ganciclovir-related adverse effect that should be carefully monitored for in this patient would be:

A. Bone marrow suppression

B. Mucositis

C. Nephrotoxicity

D. CNS toxicities

Chapter 101 - Antimicrobial Prophylaxis in Surgery

1) A patient undergoing a cholecystectomy for acute cholecystitis requires:

A. No antibiotic therapy

B. Prophylactic antibiotic therapy

C. Presumptive antibiotic therapy

D. Therapeutic antibiotic therapy

2) According to the National Research Council classification of surgical site infection (SSI), antibiotic therapy is *not* required for:

A. Clean procedures

B. Clean–contaminated procedures

C. Contaminated procedures

D. A and B

3) Which of the following are not considered patient-specific risk factors for SSIs?

A. Smoking history

B. Preoperative nutritional status

C. Male gender

D. Diabetes

4) Which of the following statements about preoperative nutrition is *true?*

A. Preoperative dietary supplementation with glutamine reduces the risk of postoperative SSIs.

B. Preoperative dietary supplementation with arginine reduces the risk of postoperative SSIs.

C. Preoperative dietary supplementation with omega-3 fatty acids reduces the risk of postoperative SSIs.

D. No dietary supplements have been shown to decrease postoperative SSI.

5) According to the National Nosocomial Infection Surveillance System, which one of the following organisms is *most often* isolated from SSIs?

A. *Streptococcus pneumonia*

B. *Staphylococcus aureus*

C. *Escherichia coli*

D. Enterococci sp.

6) The Center for Disease Control recommends that vancomycin should be substituted for a cephalosporin for surgical prophylaxis when:

A. Methicillin-resistant *S. aureus* is suspected

B. "Contaminated" and "dirty" procedures are expected

C. Patients with a documented history of a life-threatening allergy to penicillins or cephalosporins

D. The surgical procedure involves implantation of any prosthetic device

E. A and C

7) Which one of the following statements regarding prophylactic antimicrobial regimens is *false*?

A. Therapeutic antimicrobials for unrelated infections can be used in place of a prophylactic antimicrobial regimen provided that the antibiotic used has appropriate antimicrobial activity

B. Bactericidal concentrations of antibiotics must be delivered to the surgical site prior to the initial incision

C. Bactericidal concentrations of antibiotics must be maintained throughout the duration of the surgery

D. Antimicrobials should be administered with anesthesia just prior to the initial incision

8) Intraoperative redosing of typical antimicrobials (i.e., cefazolin) are required for surgical procedures longer than

A. 1 hour

B. 2 hours

C. 3 hours

D. 6 hours

9) With respect to GI surgeries, third-generation cephalosporins are considered to be the recommended prophylactic regimen for:

A. Cholecystectomies

B. Gastroduodenal surgeries

C. Colorectal surgeries

D. All of the above

10) Regarding colorectal surgery, which one of the following statements is *true*?

A. Mechanical bowel preparation (i.e., with polyethylene glycol) is an effective way to reduce bacterial load in the colon

B. Most surgeons report routinely using a mechanical bowel preparation in addition to antibiotics prior to elective colorectal surgery

C. Mechanical bowel preparation (i.e., with polyethylene glycol) is an effective way to reduce SSI risk after elective colorectal surgery

D. All of the above

E. A and B only

11) Prophylactic antimicrobial therapy for GI endoscopy is recommended for

A. All patients as postprocedure bacteremia is common

B. No patient as the risk of postprocedure infection is low

C. High-risk procedures including colonoscopy

D. High-risk patients including those with prosthetic heart valves

12) Which one of the following statements about hysterectomies is *false*?

A. Cefazolin is the prophylactic drug of choice for vaginal hysterectomies

B. Abdominal hysterectomies are associated with a higher rate of SSIs when compared to vaginal hysterectomies

C. It is unnecessary to provide more than 24 hours of prophylactic antimicrobial coverage for abdominal hysterectomies

D. Metronidazole is a reasonable alternative to a cephalosporin for penicillin-allergic patients undergoing a hysterectomy

13) Coronary artery bypass graft surgery is:

A. Considered “clean” surgery and antimicrobial prophylaxis is not warranted

B. Considered “clean” surgery but antimicrobial prophylaxis is still warranted

C. Considered “contaminated” surgery and antimicrobial prophylaxis is not warranted

D. Considered “contaminated” surgery but antimicrobial prophylaxis is still warranted

14) Patients suffering an open compound limb fracture:

A. Requires no more than 24 hours of prophylactic antibiotics

B. Requires no more than a single dose of prophylactic antibiotics

C. Requires a course of antibiotics for “presumptive” infection

D. None of the above

15) Nonantimicrobial strategies to reduce SSIs include all of the following except:

A. Permissive hypothermia intraoperatively

B. High concentrations of oxygen administration intraoperatively

C. Protocolized aseptic technique

D. Perioperative normoglycemia

Chapter 102 - Vaccines, Toxoids, and Other Immunobiologics

1) Which of the following is an example of a situation in which vaccine-induced immune response would be poor?

A. Live-attenuated influenza vaccine administered to a healthy 12-year-old child

B. Hepatitis B vaccine administered with a 1.5-inch needle to a 22-year-old woman who weighs 95 kg

C. Third dose in the inactivated polio vaccine series administered to a 12-month-old child

D. Measles–mumps–rubella vaccine administered to a 4-month-old infant

2) Which of the following is the most likely adverse effect of IVIG use in a patient with immune thromobocytopenia purpura and congestive heart failure?

A. Anaphylaxis associated with native IgM antibodies

B. Kawasaki disease

C. Volume overload

D. Chronic renal failure

3) Michael is a 5-year-old boy who presents for his well-child visit prior to entering kindergarten. His past medical history is unremarkable except for an anaphylactic reaction to amoxicillin 4 days ago when he was being treated for a tooth abscess. He was seen in the emergency room and given prednisone 40 mg daily for 5 days and azithromycin for 5 days. Although he was up-to-date on his childhood immunization at age 36 months, he now presents for routine immunizations prior to entering school. What do you recommend with a goal of administering all needed vaccines as soon as possible?

A. Administer DTaP, MMR, IPV today

B. Administer DTaP, IPV today, and postpone MMR until he has been off prednisone for 3 months

C. Administer no immunizations until he has been off prednisone for 3 months

D. Administer DTaP and IPV today and postpone MMR until he has been off antibiotics for 2 weeks

4) Which of the following describes the rationale for $Rh_o(D)$ antibody treatment?

A. Administered to an Rh-negative infant to prevent it from developing antibodies to its red blood cells

B. Administered to an Rh-positive mother to prevent her from developing antibodies to her Rh-negative infant

C. Administered to an Rh-negative mother to prevent her from developing antibodies that may cause her to become anemic

D. Administered to an Rh-negative mother to prevent her from developing antibodies to Rh-positive red blood cells that may cause anemia in the fetus in future pregnancies

5) Which of the following infections is pooled human immunoglobulin useful in preventing?

A. Measles

B. Diphtheria

C. Yellow fever

D. Guillain–Barré syndrome

6) A hypothetical new vaccine has been developed for the prevention of *Neisseria meningitides*. The vaccine is a polysaccharide vaccine that is administered by the subcutaneous route. Which of the following is likely true about its use?

A. Children younger than 2 years of age will not likely mount an immune response to it

B. Its administration should be separated from the administration of hepatitis B immunoglobulin by 4 months

C. It could be administered with a 1-½ inch, 23-gauge needle (0.635 mm × 3.8 cm) to a 75-kg female

D. A single dose will likely induce high concentrations of antigen-specific IgG

7) Justin is a 22-year-old male who had significant contact with a raccoon deemed to have rabies. The patient received rabies immunoglobulin and began the inactivated rabies vaccine series (doses on days 0, 3, 7, 14, and 28) in the emergency room yesterday. He now presents for follow-up with employee health service. Upon review of his health record including his immunization record, a second dose of a measles-containing vaccine is recommended because he is a healthcare worker. Which of the following strategies is recommended for the second dose of MMR vaccine?

A. Administer an MMR vaccine now

B. Administer the MMR vaccine in 4 weeks

C. Administer an MMR vaccine in 4 months

D. Administer an MMR vaccine in 6 months

Use this case for the next two questions.
Sarah is a 24-year-old elementary school teacher who is 14 weeks pregnant. This is her first pregnancy. She was noted to be rubella seronegative on routine prenatal screening laboratory panel. She is blood type A negative. She was age-appropriately immunized as a child.

8) Which of the following recommendations is appropriate for the administration of a dose of rubella-containing vaccine?

A. Vaccinate postpartum at hospital discharge

B. Vaccinate now to prevent possible congenital rubella syndrome

C. Vaccinate 3 months postpartum

D. No rubella vaccine should be given as she received the MMR as a child

9) Which of the following strategies for the use of Rh_o(D) Ig is appropriate?

A. Rh_o(D) Ig is not indicated

B. Rh_o(D) Ig should be administered only during subsequent pregnancies

C. Rh_o(D) Ig should be administered at 28 weeks' gestation and following delivery

D. Rh_o(D) Ig should is contraindicated during pregnancy

10) Mr. Olden is a 46-year-old man who has just been diagnosed with type 2 diabetes. He has not received any immunizations as an adult that he can remember and has not seen a physician since his military physical. Which of the following vaccines are recommended?

A. Hepatitis A, hepatitis B, PPSV23, annual influenza, Tdap

B. PPSV23, annual influenza, Tdap

C. Hepatitis A, hepatitis B

D. PCV13, annual influenza, Tdap

11) For which of the following individuals would you recommend PPSV23 revaccination?

A. A 72-year-old man with COPD who was vaccinated 5 years ago

B. A 66-year-old woman with diabetes who was vaccinated when she was 62

C. A 44-year-old man with HIV who was vaccinated at the time of HIV diagnosis 5 years ago

D. A 62-year-old kidney transplant patient who was vaccinated prior to her transplant 3 years ago

12) What action is recommended if the interval between doses of inactivated polio vaccine is longer than the recommended interval?

A. Add one additional dose

B. Restart the series from the beginning

C. Continue the series, ignoring the prolonged interval

D. Perform a serologic test to determine if a vaccine response has been mounted

13) Mr. North is a 66-year-old white man who is being seen for a preanesthesia physical examination prior to a planned uncomplicated hernia repair scheduled in 2

weeks. He is otherwise healthy, on no medications, and has not been immunized since he "got his polio sugar cube in the 50s." Which of the following vaccines are recommended?

A. MMR, Td, annual live-attenuated influenza

B. Td, annual live-attenuated influenza, *Haemophilus influenzae* type b, meningococcal, PPV23

C. Td, annual inactivated influenza, PPSV23, zoster

D. Tdap, annual inactivated influenza, PPSV23, zoster

14) Which of the following describes an advantage of the Vaccine Adverse Event Reporting System?

A. All vaccine adverse events that occur in the United States are reported

B. Only common adverse events are collected

C. Adverse event rates can be calculated

D. Risk factors for adverse events can be evaluated

15) Which of the following type of vaccines is likely to induce lifelong immunity?

A. Polysaccharide

B. Toxoid

C. Conjugated polysaccharide

D. Live-attenuated

Chapter 103 - Human Immunodeficiency Virus Infection

1) Which of the following statements regarding the transmission of HIV is *false*?

A. Insertive sexual intercourse carries higher risk for HIV acquisition compared with receptive intercourse

B. The main modes of HIV transmission are sexual, parenteral, and perinatal

C. Condom use reduces the risk of HIV transmission by more than 10-fold

D. HIV can be transmitted from mother to infant via breastfeeding

2) Which of the following is *not* an accurate characterization of the HIV epidemic?

A. HIV infections are most concentrated in sub-Saharan Africa

B. In the United States, approximately 20% of those infected with HIV are unaware of being infected

C. The main risk factor for HIV worldwide is men who have sex with men

D. Approximately 34 million humans have HIV infection worldwide

3) Which of the following regarding the molecular characteristics of HIV is *false*?

A. HIV is a DNA virus

B. There are two main types of HIV, HIV-1, and HIV-2

C. There are multiple clades (subtypes) that further distinguish the HIV viruses

D. HIV is believed to have originated from a cross-species transmission of a simian immunodeficiency virus from primates to humans

4) Which of the following best represents the method by which HIV is diagnosed clinically?

A. Incubation of patient's blood in culture to recover virus

B. An enzyme-linked immunosorbent assay (ELISA) that detects antibodies against HIV followed by a confirmatory western blot

C. Urine test to recover virus

D. Signs and symptoms that are consistent with HIV infection

5) Which of the following steps in the HIV life-cycle establishes lifelong infection?

A. Adsorption and penetration

B. Reverse transcription

C. Viral maturation

D. Integration

6) Which of the following signs or symptoms is *not* commonly associated with primary HIV infection?

A. Fever

B. Rash

C. Rhinitis

D. Aseptic meningitis

7) Which of the following is *not* a foundational principle for clinical use of antiretroviral agents?

A. Plasma HIV-RNA informs about the magnitude of HIV replication and the CD4 cell count indicates the extent of HIV-induced immune system damage

B. Single or dual nucleoside analog therapy is sufficient for treating HIV-infected patients

C. Treatment decisions should be individualized

D. Cross-resistance between specific drugs has been documented

8) Which of the following pharmacologic characteristics is best representative of the nucleoside analog reverse transcriptase (NRTI) inhibitor class?

A. Significant drug–drug interaction potential with cytochrome P450 (CYP450) substrates

B. A single mutation in HIV reverse transcriptase gene causes cross-resistance to the whole class

C. The drugs enter cells, become phosphorylated to the active triphosphate anabolite, and inhibit HIV reverse transcriptase

D. Most are extensively metabolized by the liver

9) Which of the following drugs would cause the most significant concern for a drug–drug interaction for a patient on lopinavir/ritonavir-based therapy?

A. A 5-day regimen of IV penicillin

B. A new oral antiarrhythmic extensively metabolized by CYP450 3A

C. Aspirin as needed for headache

D. A new selective serotonin reuptake inhibitor eliminated by the kidney

10) Which initial therapy is the best choice for a pregnant woman (first trimester) with a CD4 cell count of 295 cells/mm^3 (295 × 10^6/L)?

A. Efavirenz, zidovudine, lamivudine

B. Lopinavir/ritonavir, zidovudine, lamivudine

C. Nevirapine, tenofovir, didanosine

D. Tenofovir, lamivudine, abacavir

11) Which two nucleoside analogs (NRTIs) should not be used together due to potential competition for phosphorylation and pharmacologic antagonism?

A. Zidovudine and tenofovir

B. Tenofovir and lamivudine

C. Lamivudine and abacavir

D. Zidovudine and stavudine

12) Which one of the following statements regarding HIV drug resistance is *false*?

A. A phenotype assay measures the in vitro drug concentration needed for inhibition of the patient's viral isolate

B. A genotype assay measures the genetic makeup of the patient's virus and reports the important mutations found

C. Nonnucleoside analog reverse transcriptase inhibitors are susceptible to a single genetic mutation in HIV that extends cross-resistance to the class (except etravirine)

D. The protease inhibitors class is susceptible to a single genetic mutation in HIV that extends cross-resistance to the class (low genetic barrier)

13) Which of the following special circumstances or clinical scenarios does *not* have its own set of recommended guidelines for care?

A. Guidelines for using chemotherapeutic agents for oncology in persons with HIV

B. Guidelines for the use of antiretroviral agents in HIV-infected adults and adolescents

C. Guidelines for the treatment and prevention of opportunistic infections in HIV-infected adults and adolescents

D. Guidelines for the use of antiretroviral agents in HIV-infected children

14) Which of the following statements regarding the management of *Pneumocystis jirovecii* pneumonia is *false*?

A. Lifelong prophylaxis is needed even with successful antiretroviral therapy

B. Sulfamethoxazole–trimethoprim is the drug of first choice for treatment

C. Primary prophylaxis is recommended for patients with fewer than 200 CD4 cells/mm^3 (200 x 10^6/L)

D. Moderate-to-severe disease should be treated with corticosteroids

15) Which of the following statements regarding ART-era complications is *false*?

A. Dyslipidemia, body fat changes, abnormalities in glucose handling, are all ART-era complications

B. Complications usually associated with aging seem to occur earlier in the ART-era complications

C. Hepatitis C coinfection should not be treated in patients with HIV

D. Antiretroviral drugs are effective at prevention HIV transmissions

Chapter 104 - Cancer Treatment and Chemotherapy

1) In the multistep model of carcinogenesis, which of the following terms is reversible and a target for cancer prevention strategies?

A. Initiation

B. Promotion

C. Conversion

D. Progression

2) Which of the following terms refers to a gene that can help prevent abnormal cellular growth?

A. Protooncogene

B. Oncogene

C. Tumor suppressor gene

D. DNA repair gene

3) LZ is a 50-year-old woman who is completing a yearly physical examination with her physician. What screening tests or procedures for an asymptomatic woman with no additional risk factors would not be recommended?

A. Monthly self-breast exam

B. Yearly clinical breast exam

C. Yearly mammography

D. Yearly magnetic resonance imaging.

MM is a 45-year-old white man who was recently diagnosed with colon cancer. Further workup determined the tumor to be T3N1M0 in "TNM" staging. He has begun systemic treatment with a chemotherapy regimen including 5-fluorouracil, leucovorin, and oxaliplatin.

4) Based on MM's TNM stage, which of the following best describes his anticancer treatment?

A. Adjuvant

B. Neoadjuvant

C. Induction

D. Palliative

5) Leucovorin is included in the chemotherapy regimen to:

A. Reduce the toxicity of the 5-fluorouracil

B. Increase the cytotoxicity of the 5-fluorouracil

C. Reduce the toxicity of the oxaliplatin

D. Increase the cytotoxicity of the oxaliplatin

6) The toxicities commonly associated with this chemotherapy regimen include:

A. Diarrhea and nephropathy

B. Diarrhea and neuropathy

C. Neuropathy and ototoxicity

D. Nephropathy and ototoxicity

7) MM's absolute neutrophil count (ANC) dropped below 500 cells/mm^3 (0.5×10^9/L) during his last treatment cycle and he developed an infection that required IV antibiotics. What intervention, if any, is recommended to minimize the risk of neutropenic fever with subsequent treatment cycles?

A. Begin pegfilgrastim as secondary prophylaxis

B. Reduce the dose of oxaliplatin and 5-fluorouracil

C. Begin prophylactic antibiotics against common pathogens

D. No intervention is required

8) Select the correct statement:

A. All cells in a tumor mass have identical genes

B. Combination regimens are used to maximize clinical benefit

C. Anticancer treatment destroys tumor cells equally well in every part of the body

D. None of the above statements are correct

9) LY recently started consolidation with high-dose cytarabine as an IV infusions after a documented complete response following induction therapy with daunorubicin plus cytarabine. Her creatinine clearance is approximately 30 mL/min (0.50 mL/s) (estimated) and her bilirubin is 2.4 mg/dL (41 µmol/L). What are her risk factors for cerebellar dysfunction?

A. Renal dysfunction

B. Hepatic dysfunction

C. Administration schedule

D. Cumulative dose

10) All of the following agents are believed to work through effects on topoisomerases enzymes except:

A. Taxanes

B. Anthracyclines

C. Camptothecins

D. Etoposide

11) PM is a 65-year old male diagnosed with stage IV with non-small-cell lung cancer about to receive carboplatin plus paclitaxel. The order is written as follows: carboplatin AUC 6. The patient has a calculated CrCl of 80 mL/min (1.33 mL/s) and a BSA of 2 m^2. What dose of carboplatin should PM receive?

A. 1,260 mg

B. 630 mg

C. 275 mg

D. 12 mg

12) The suffix -ximab in rituximab indicates the antibody source was:

A. Human

B. Chimeric

C. Mouse

D. Humanized

13) Which of the following anticancer treatments does not cause profound lymphopenia necessitating prophylaxis for *Pneumocystis* pneumonia or other opportunistic infections?

A. Fludarabine

B. Cetuximab

C. Cladribine

D. Alemtuzumab

14) Anticancer treatments that affect which of the following intracellular signaling pathways are most likely to cause perforation, thrombosis, and hemorrhaging?

A. MAPK

B. VEGF

C. HER

D. PI3K

15) KH is a 30-year-old woman recently diagnosed with stage IV melanoma. All of the following patient- or tumor-specific factors should be known before starting treatment with vemurafenib except:

A. BRAF V600E mutation status

B. Hepatic function

C. Cardiac rhythm

D. UGT1A1 status

Chapter 105 - Breast Cancer

1) Which of the following are considered risk factors for developing breast cancer?

A. Age, late menarche, early menopause

B. Hormone replacement therapy, early menarche, early menopause

C. Age, hormone replacement therapy, first pregnancy after age 30 years

D. Hormone replacement therapy, first pregnancy after age 30 years, early menopause

E. Age, first pregnancy after age 30 years, early menopause

2) Most women with breast cancer present with

A. A painful, large mass in the skin of the breast

B. A soft mass with pain associated with monthly periods

C. A painful, small mass deep in the muscle of the chest wall

D. A painless lump in the breast

E. A soft mass with nipple discharge

3) LG is a woman with newly diagnosed breast cancer. Her tumor was 3 cm in size with five positive lymph nodes upon axillary dissection, and she has no other sites of cancer spread. According to the TNM staging system for breast cancer, what stage of breast cancer does LG have?

A. Stage IIIC

B. Stage IIA

C. Stage IIB

D. Stage IIIA

E. Stage IIIB

4) When comparing breast conserving therapy (BCT) with a modified radical mastectomy, which of the following statements are true?

A. Despite slightly higher local recurrence rates, BCT is associated with similar survival outcomes.

B. BCT is associated with decreased local recurrence rates.

C. A modified radical mastectomy is associated with improved survival.

D. These procedures have similar local recurrence rates and survival.

E. BCT is associated with increased local recurrence rates and decreased survival.

5) Which of the following adjuvant chemotherapy combinations is most appropriate for the treatment of early stage breast cancer?

A. Docetaxel, doxorubicin, cyclophosphamide (TAC)

B. Irinotecan, fluorouracil, leucovorin (IFL)

C. Cyclophosphamide, doxorubicin, vincristine, prednisone (CHOP)

D. Doxorubicin, paclitaxel (AT)

E. Doxorubicin, ifosfamide (AI)

6) Which of the following adjuvant endocrine therapy regimens is most appropriate for a postmenopausal woman with early stage breast cancer?

A. Anastrozole for 5 years

B. Letrozole for 2 years

C. Fulvestrant for 2 years

D. Tamoxifen for 5 years

E. Goserelin for 5 years

7) MR is a 42-year-old woman with newly diagnosed inflammatory right breast cancer. What is the best option for primary therapy at this time?

A. Surgery

B. Radiation

C. Endocrine therapy

D. Chemotherapy

E. Chemoradiation

8) Which of the following stages of breast cancer are generally considered incurable?

A. Stage 0

B. Stage IIA

C. Stage IIIA

D. Stage IIIC

E. Stage IV

9) Which of the following hormonal therapies is most appropriate for adjuvant treatment in a premenopausal woman?

A. Anastrozole

B. Letrozole

C. Exemestane

D. Tamoxifen

E. Fulvestrant

10) SW is a 66-year-old postmenopausal woman with newly diagnosed metastatic breast cancer to the liver (ER and PR positive; HER2 negative). This was found on routine blood work (elevated transaminases) and was confirmed by CT scan and biopsy. She is otherwise asymptomatic from her cancer and feels well. Which of the following regimens would be best to treat her cancer at this time?

A. Letrozole

B. Lapatinib

C. Trastuzumab

D. Paclitaxel

E. Irinotecan

11) DB is a 35-year-old premenopausal woman with newly diagnosed metastatic breast cancer (triple negative). She completed adjuvant chemotherapy

(anthracycline- and taxane-containing regimen) for a locally advanced breast cancer approximately 7 months ago. She now has widespread lung metastases with shortness of breath and coughing at rest. Which of the following regimens would be most likely to provide symptomatic relief for this patient at this time?

A. Letrozole

B. Docetaxel with trastuzumab

C. Capecitabine

D. Ixabepilone with capecitabine

E. Vinorelbine

12) LJ is a 43-year-old woman with newly diagnosed breast cancer. Her tumor was 4 cm in size with six positive lymph nodes upon axillary dissection, and she has no other sites of cancer. Her tumor is ER and PR negative and HER2 positive by FISH. Which of the following regimens would be most appropriate to treat her early stage breast cancer?

A. Doxorubicin + Cyclophosphamide (AC) → paclitaxel + trastuzumab (PH)

B. Fluorouracil, doxorubicin, cyclophosphamide (FAC)

C. Doxorubicin + cyclophosphamide (AC) → Paclitaxel (P)

D. Docetaxel + trastuzumab (TH)

E. Vinorelbine + trastuzumab (VH)

13) Which of the following agents prevent HER2 protein dimerization and subsequent cell signaling?

A. Lapatinib

B. Pertuzumab

C. Everolimus

D. Trastuzumab

E. Bevacizumab

14) CB is a 35-year-old woman with a known *BRCA1* mutation. According to the American Cancer Society, which of the following screening modalities would be recommended for her annually?

A. Mammography and clinical breast examination

B. Mammography alone.

C. Breast MRI, mammography , and clinical breast examination

D. Breast MRI and clinical breast examination

E. Breast MRI alone

15) According to the NSABP Tamoxifen Prevention Trial (P1), tamoxifen given for 5 years (compared with placebo) is associated with which of the following?

A. Increased risk of endometrial cancer and gastrointestinal cancers

B. Increased risk of thromboembolism and endometrial cancer

C. Decreased risk of breast cancer and cataracts

D. Decreased risk of endometrial and breast cancer

E. Increased risk of thromboembolism and osteoporosis

Chapter 106 - Lung Cancer

1) Which of the following is *not* true about lung cancer?

A. Increasing frequency

B. Highest rate of cancer-related mortality

C. Closely linked to smoking

D. Has the lowest 5-year survival rate among the top 4 malignancies

2) What lung cancer histology type is the most common in nonsmokers?

A. Adenocarcinoma

B. Squamous cell carcinoma

C. Large cell carcinoma

D. Small cell lung cancer

3) Which of the following is true about lung cancer screening in high-risk individuals?

A. Annual low-dose CT scans decrease lung cancer specific mortality by 23%

B. Annual chest radiography ± sputum decreases mortality by ~30%

C. Screening has no impact on mortality

D. High-risk individuals are optimally screened annually from age 55 until age 74 years

4) What is the most effective treatment modality for stage Ib NSCLC?

A. Surgery

B. Chemotherapy

C. Radiotherapy

D. Immunotherapy

5) What histology in a patient with advanced stage NSCLC has fewer effective treatment options and a worse prognosis?

A. Squamous cell

B. Adenocarcinoma

C. Large cell

D. They are all similar

6) Which of the following maintenance therapies appears to be most effective (given to the appropriate patient)?

A. Pemetrexed

B. Cetuximab

C. Paclitaxel

D. Vinorelbine

7) What first-line therapy should be recommended for a patient with stage IV squamous cell carcinoma of the lung?

A. Cisplatin and gemcitabine

B. Carboplatin/paclitaxel and bevacizumab

C. Carboplatin/pemetrexed

D. Erlotinib

8) What therapy would you recommend for a newly diagnosed patient with adenocarcinoma of the lung with brain and liver metastasis, whose tumor has wild-type KRAS and EGFR?

A. Cisplatin and pemetrexed

B. Carboplatin/docetaxel and bevacizumab

C. Carboplatin/gemcitabine

D. Erlotinib

9) What genetic marker(s) predicts response to erlotinib?

A. EGFR exon 19 or 21 mutation

B. KRAS G12 mutation

C. EML4-ALK rearrangement

D. ROS1 mutation

10) What is the most effective treatment plan for limited stage SCLC?

A. Cisplatin/etoposide with concurrent radiation

B. Surgery followed by carboplatin

C. Radiation followed by topotecan

D. Surgery followed by radiation and cisplatin

11) Which of the following is true about SCLC patients who respond to therapy?

A. Prophylactic cranial radiation improves survival

B. Maintenance therapy is crucial to cure the patient

C. Second-line therapy generally improves median survival by 4 months

D. Paclitaxel is a mainstay of systemic therapy

12) Which of the following patients should be genotyped prior to starting targeted therapy?

A. Patient with stage 4 adenocarcinoma of the lung

B. Patient with stage 3b squamous cell carcinoma of the lung

C. Patient with stage 2a large cell carcinoma of the lung

D. All lung cancer patients

mended for her annually?

A. Mammography and clinical breast examination

B. Mammography alone.

C. Breast MRI, mammography , and clinical breast examination

D. Breast MRI and clinical breast examination

E. Breast MRI alone

15) According to the NSABP Tamoxifen Prevention Trial (P1), tamoxifen given for 5 years (compared with placebo) is associated with which of the following?

A. Increased risk of endometrial cancer and gastrointestinal cancers

B. Increased risk of thromboembolism and endometrial cancer

C. Decreased risk of breast cancer and cataracts

D. Decreased risk of endometrial and breast cancer

E. Increased risk of thromboembolism and osteoporosis

Chapter 107 - Colorectal Cancer

1) Which of the following factors is associated with an increased risk of developing colorectal cancer?

A. High dietary caffeine intake

B. Rectal hemorrhoids

C. Gastroesophageal reflux disease

D. Chronic ulcerative colitis

2) A 30-year-old healthy male has a father and a paternal grandfather who were diagnosed with colon cancer. He is seeking advice so that he may reduce his personal risk of developing colon cancer. Which of the following recommendations is *most* appropriate?

A. Maintain a healthy BMI; keep physically active; eat a balanced diet

B. Avoid tobacco use; take folic acid and vitamin D supplements daily

C. Take a low dose of aspirin (81 to 160 mg) orally each day

D. Avoid meat and dairy products; restrict dietary intake to fruit, vegetables, and grains

3) A 50-year-old healthy female has a father who was diagnosed with hereditary nonpolyposis colorectal cancer (HNPCC) at age 45. What advice for the daughter is most appropriate?

A. Her risk for colorectal cancer is low because her father was diagnosed at a younger age

B. She should undergo annual flexible sigmoidoscopy screening for colorectal cancer

C. She should undergo testing for susceptibility to HNPCC

D. Her risk for colorectal cancer is low because HNPCC only affects males

4) Which of the following statements regarding aspirin as chemoprevention for colorectal cancer is *true*?

A. Chronic daily aspirin use decreases cancer risk and daily low-dose aspirin (81 mg/day) is recommended for the general population starting at age 50

B. Higher aspirin doses decrease risk of recurrent polyps and daily aspirin (325 mg/day) is recommended for patients with a history of colorectal polyps

C. Regular daily aspirin (81 to 325 mg/day) decreases cancer risk in patients with a family history of cancer and is recommended for all patients diagnosed with Lynch syndrome

D. Regular long-term aspirin use (81 to 325 mg/day) decreases colorectal cancer risk, but is currently not recommended in the general population to decrease cancer risk

5) Which of the following colorectal cancer screening methods is *most* appropriate for a 55-year-old male who refuses to take a bowel prep as part of the procedure?

A. Virtual colonoscopy every 10 years

B. Annual digital rectal exam

C. Annual fecal occult blood testing

D. Annual double-contrast barium enema

6) A 53-year-old female with stage II hypertension is diagnosed with Stage IIB colon cancer following a routine screening colonoscopy. She underwent surgical resection of the mass and regional mesenteric lymph nodes. The tumor was poorly differentiated and showed evidence of lymphatic invasion. Which of the following statements regarding adjuvant chemotherapy for this individual is true? Adjuvant chemotherapy:

A. Does not benefit patients with stage II colon cancer; she should not receive additional treatment

B. Should be offered because her cancer is associated with several poor prognostic factors

C. Is standard of care for stage II colon cancer; she should receive treatment

D. Is contraindicated in patients with hypertension; she should not receive additional treatment

7) Which of the following adjuvant treatment regimens for stage III rectal cancer is most appropriate? Postoperative:

A. Radiation therapy

B. Radiation plus capecitabine plus oxaliplatin chemotherapy

C. Capecitabine

D. Fluorouracil plus leucovorin

8) A 67-year-old female is diagnosed with stage III cancer of the colon. Her CEA level at the time of diagnosis was WNL. Other laboratory test results for CBC, AST, ALT, LDH, and total bilirubin were also WNL. She underwent a surgical resection of her primary tumor followed by adjuvant capecitabine chemotherapy for 6 months following resection. Which of the following tests is most appropriate to monitor regularly to detect recurrent disease?

A. Serum CEA

B. CBC and Panel 7

C. PET scan

D. Abdominal CT scan

9) A 62-year-old male with a history of type 2 DM and peripheral neuropathy is diagnosed with inoperable metastatic colon cancer. The oncologist has suggested the combination of infusional fluorouracil, leucovorin, and irinotecan (FOLFIRI) as an initial regimen instead of an oxaliplatin-containing regimen based on the treatment toxicity profile. What adverse drug effect should be minimized with FOLFIRI?

A. Diarrhea

B. Myelosuppression

C. Neuropathy

D. Hypomagnesemia

10) A 68-year-old male with a history of hypertension was diagnosed with stage IV colorectal cancer. The tumor was *KRAS* mutant and EGFR positive. At the time of diagnosis, an abdominal CT scan showed two isolated hepatic lesions and a chest X-ray showed no evidence of disease. His blood pressure is controlled with medications. Which of the following preoperative treatment regimens is *most* appropriate to improve his opportunity for a curative resection?

A. Bevacizumab plus capecitabine

B. Bevacizumab plus FOLFIRI

C. Capecitabine plus oxaliplatin plus ziv-aflibercept plus panitumumab

D. FOLFOXIRI plus cetuximab

11) A 61-year-old female with *KRAS* wild-type metastatic colon cancer was initially treated with FOLFOX. After 6 months of chemotherapy, she experienced a partial response to treatment and therapy was continued. Four months later, she developed worsening abdominal pain and an abdominal CT scan showed new sites of disease in her liver. Her oncologist changed her treatment regimen to FOLFIRI plus bevacizumab. Two months later, imaging studies show an increase in the size and number of liver metastases. Which of the following modifications to her current treatment regimen is now *most* appropriate?

A. Discontinue current regimen; start irinotecan plus cetuximab

B. Continue FOLFIRI and bevacizumab; add cetuximab

C. Continue FOLFIRI; discontinue bevacizumab; start ziv-aflibercept

D. Discontinue current regimen; start FOLFOXIRI plus panitumumab

12) An adult male has metastatic colorectal cancer that has progressed after several combination chemotherapy regimens, including fluorouracil plus leucovorin and irinotecan, cetuximab, and bevacizumab plus fluorouracil plus leucovorin plus oxaliplatin. Compared to best supportive care, administration of which agent at this time is*most* likely to improve his survival?

A. Regorafenib

B. Panitumumab

C. ziv-Aflibercept

D. Capecitabine

13) An adult male with metastatic colorectal cancer is considered for initial systemic chemotherapy. He was genotyped for UGT1A1 as part of the pretreatment evaluation and the results show that he is homozygous UGT1A1*28. Based on the results of this test, how might his treatment plan be adjusted?

A. Capecitabine might be preferred to fluorouracil in his therapy

B. He might not be a candidate for oxaliplatin

C. The initial dose of irinotecan might need to be adjusted

D. Bevacizumab might be indicated as part of his therapy

14) A 60-year-old female is to receive cetuximab plus irinotecan for metastatic colorectal cancer that progressed with irinotecan, fluorouracil, and leucovorin chemotherapy. She tolerated cycles of previous chemotherapy well, with only minor nausea and occasional loose stools. Which of the following counseling points is *most*appropriate with regard to this new chemotherapy regimen?

A. Infusion-related reactions with cetuximab are common

B. Dose-limiting diarrhea is a frequent complication with this regimen

C. Cetuximab is associated with a follicular skin rash that may be severe

D. Peripheral neuropathy associated with this regimen is often dose limiting

15) A 61-year-old adult female underwent surgical resection 8 months ago for Stage III colon cancer. She received a 6-month postoperative treatment regimen with weekly fluorouracil plus high-dose leucovorin. Routine follow-up imaging and laboratory tests confirmed cancer recurrence in her liver and lungs. She is otherwise asymptomatic and healthy. Which of the following treatments is *most* appropriate?

A. Observe the patient until she develops symptoms, and then start oral capecitabine

B. Start bevacizumab plus irinotecan

C. Start oxaliplatin plus cetuximab

D. Start the FOLFOX regimen (oxaliplatin, fluorouracil, and leucovorin)

Chapter 108 - Prostate Cancer

1) In a patient treated with androgen deprivation therapy (ADT) and a gonadotropin-releasing hormone (GnRH) agonist for prostate cancer, which of the following complications is this patient more likely to experience?

A. New-onset diabetes

B. Type I diabetes

C. Chronic renal insufficiency

D. Irritable bowel syndrome

E. Arthritis

2) Which of the following most accurately describes adverse events associated with cabazitaxel?

A. Ototoxicity, mucositis, alopecia, nephrotoxicity

B. Fluid retention, mucositis, hypersensitivity reactions, bone marrow suppression

C. Hepatotoxicity, nephrotoxicity, thrombosis, pruritus

D. Headache, confusion, pruritus, fluid retention, bone marrow suppression

E. Nausea, mucositis, alopecia, hot flushes

3) Monitoring for liver function tests in patients receiving abiraterone acetate is recommended:

A. At baseline and monthly thereafter

B. At baseline and every 6 months for the first 2 years

C. At baseline, weekly for first 3 months, and then monthly thereafter

D. At baseline, every 2 weeks for first 3 months, and then monthly thereafter

E. At baseline, every 3 weeks for first 6 months, and then monthly thereafter

4) In a patient with hormone refractory prostate cancer that has spread to the bone, which of the following treatments may help decrease skeletal related events and pain?

A. Enzalutamide 160 mg daily

B. Calcium and vitamin D supplementation

C. Combined androgen blockade with leuprolide 22.5 mg depot every 12 weeks and goserelin 10.8 mg implant every 12 weeks

D. Bicalutamide 50 mg daily

E. Denosumab 120 mg SQ every 4 weeks

5) Sipuleucel-T is indicated for treatment of prostate cancer in:

A. A patient with metastatic castrate-resistant prostate cancer as last-line therapy

B. A patient with minimally symptomatic metastatic castrate-resistant prostate cancer

C. A patient with metastatic castrate-resistant prostate cancer who has failed docetaxel

D. A patient with newly diagnosed prostate cancer

E. A patient with metastatic castrate-resistant prostate cancer who has failed abiraterone acetate

6) Which of the following dietary factors have been associated with an increased risk in prostate cancer?

A. B-carotene

B. Lycopene

C. Retinol

D. Vitamin D supplementation

E. Selenium

7) Which of the following groups of men would be eligible for PSA screening at the age of 40 years?

A. Caucasian ancestry

B. History of osteoporosis

C. African American ancestry

D. History of kidney stones

E. Asian ancestry

8) Which of the following is considered the most important prognostic criteria when staging prostate cancer?

A. Tumor size

B. Local extent of the tumor

C. Metastases

D. Lymph node involvement

E. Histiologic grade

9) Which of the following agents should be monitored for electrolyte abnormalities, fluid retention, and changes in liver function tests?

A. Enzalutamide

B. Bicalutamide

C. Leuprolide

D. Abiraterone acetate

E. Degarelix

10) Which of the following androgen deprivation therapies is associated with an increase risk of seizures?

A. Enzalutamide

B. Bicalutamide

C. Nilutamide

D. Flutamide

E. Abiraterone acetate

11) Which of the following is an effective method to attempt to decrease a rising PSA in patient who initially received combined androgen blockade with an LHRH agonist?

A. Increase the dose of the antiandrogen therapy.

B. Switch the antiandrogen to another antiandrogen therapy.

C. Withdraw the antiandrogen therapy.

D. Increase the dose of the LHRH agonist therapy.

E. Withdraw the LHRH agonist therapy.

12) Which of the following is *true* regarding prostate cancer that is staged as: T_{3b}, Gleason score 8 and a PSA of 40?

A. These have a high risk of recurrence and proper management includes docetaxel and prednisone.

B. These have a high risk of recurrence and proper management includes immediately starting combined androgen deprivation therapy.

C. These tumors have an intermediate risk of recurrence and initial therapy should include immediate surgery followed by a 6-month course of androgen deprivation therapy.

D. These tumors have a low risk of recurrence, treatment strategies potentially include prostatectomy or radiation or expectant management.

E. These tumors have a low risk of recurrence; treatment should include 2 to 3 years of androgen deprivation followed by close followup.

13) Which of the following treatment options for prostate cancer is considered to have the most potential complications?

A. Radiation.

B. Radical prostatectomy.

C. Antiandrogen therapy.

D. LHRH agonist + antiandrogen therapy.

E. All are considered to be similar in potential complications.

14) Digital rectal exam when used in combination with PSA is recommended for the detection of prostate cancer due to:

A. High specificity

B. High sensitivity

C. Low specificity

D. Low sensitivity

E. High sensitivity and low specificity

15) Which of the following therapies would be appropriate in a metastatic castrate-resistant prostate cancer patient who failed docetaxel?

A. Cabazitaxel

B. Abiraterone acetate

C. Enzalutamide

D. All of the above

E. None of the above

Chapter 109 - Lymphomas

1) What is the first-line treatment of choice for a patient with Stage IIA Classical Hodgkin lymphoma?

A. ABVD chemotherapy

B. Surgical resection

C. Involved field radiation

D. All of the above

2) Which of the following is *not* a “B” symptom?

A. Night sweats

B. Fever

C. Pruritus

D. Weight loss (>10%)

3) A 50-year-old white male presents with fatigue, weight loss, and fever and is later diagnosed with Stage IV Hodgkin lymphoma. Additional labs include: Hgb 9.1 g/dL, WBC 23,000/µL, Plt 120,000/µL, albumin 3.2 g/dL, SCr 1.1 g/dL, and bili 1 g/dL.What would be the most effective initial risk-adapted treatment for this patient?

A. COPP/ABVD

B. ABVD

C. MOPP

D. Escalated dose BEACOPP

4) A 22-year-old male with Stage IV Hodgkin lymphoma wants to retain fertility. What chemotherapy regimen would you recommend for this patient?

A. ABVD

B. MOPP

C. ChlVPP

D. MOPP/ABV hybrid

5) A 25-year-old female is diagnosed early-stage Hodgkin lymphoma with favorable prognosis. She is going to receive four cycles of ABVD. What is the overall survival rate for this patient?

A. >10%

B. >30%

C. >60%

D. >90%

6) Which of the following long-term toxicities is a greater concern for escalated dose BEACOPP as compared with ABVD?

A. Cardiac disease

B. Secondary leukemia

C. Interstitial pulmonary fibrosis

D. Renal insufficiency

7) Which of the following statements is true about a patient who relapses 4 months after receiving MOPP chemotherapy for Stage IV Hodgkin lymphoma?

A. Autologous hematopoietic stem cell transplant offers a relatively high chance of cure

B. The patient will likely be cured with ABVD or the Stanford V regimen

C. Salvage therapy should include radiation to optimize the cure rate

D. Patients who have an early relapse (<1 year) are not curable

8) Brentuximab is a monoclonal antibody targeted against lymphoma cells. What is the molecular target of brentuximab?

A. CD20

B. CD30

C. CD52

D. LAP (lymphoma-associated protein)

9) Which of the following classification systems is currently used for non-Hodgkin lymphoma?

A. REAL-WHO

B. Luke-Collins

C. Kiel

D. International Working Formulation

10) What is the clinical objective of the IPI and FLIPI score?

A. To classify the lymphoma as either indolent or aggressive

B. To predict likelihood for conversion to a more aggressive histology

C. To classify the lymphoma into molecular subtypes

D. To predict prognosis (i.e., survival)

11) What is the appropriate treatment for a newly diagnosed patient with advanced-stage follicular lymphoma?

A. No initial treatment (“watch and wait”)

B. Rituximab alone

C. Rituximab and CHOP chemotherapy (R-CHOP)

D. All of the above are appropriate treatment options, depending on patient and tumor characteristics and patient and physician preferences

12) Which of the following terms best describe Bexxar and Zevalin?

A. Monoclonal antibodies

B. Radioimmunoconjugates

C. Immunotoxins

D. Recombinant proteins

13) What is the appropriate treatment for a newly diagnosed patient with advanced-stage diffuse large B-cell lymphoma?

A. Rituximab and CHOP chemotherapy (R-CHOP)

B. Bendamustine

C. CHOP chemotherapy

D. Bexxar or Zevalin

14) Which of the following statements best describe the results of appropriate treatment in patients with advanced-stage diffuse large B-cell lymphoma?

A. About 30% to 60% of patients can be cured of their cancer

B. About 60% to 90% of patients can be cured of their cancer

C. Patients are not cured of their disease, but they will probably live longer

D. Patients will probably not live longer, but they may have improved quality of life

15) Which of the following chemotherapy regimens warrant primary prophylaxis with granulocyte colony-stimulating factor?

A. Dose-dense CHOP

B. Escalated-dose BEACOPP

C. BEACOPP-14

D. All of the above

Chapter 110 - Ovarian Cancer

1) Based on the proposed etiology for ovarian cancer, what may have a protective effect to decrease the risk of ovarian cancer?

A. Regular menstruation

B. Hormone replacement use for 5 years

C. No oral contraceptive use

D. Multiple children

E. Hysterectomy

2) SC is a 34-year-old woman who has not had children yet with a CA-125 of 18 U/mL that presents to the Ovarian Cancer Prevention clinic to be screened and counseled on her risk for developing ovarian cancer. Her mother died from ovarian cancer at the age of 56 and her older sister has just been diagnosed with ovarian cancer at the age of 42. SC would like to know if she should worry about developing ovarian cancer too. Does SC need to be concerned?

A. No, there is hereditary relationship for the risk of developing ovarian cancer

B. No, SC's CA-125 is within normal range

C. Yes, women with two or more immediate family members with ovarian cancer she does have an increased risk of developing ovarian cancer

D. Yes, women who do not have children before the age of 30 are at an increased risk for ovarian cancer

E. Yes, SC has an elevated CA-125 and could already have cancer

3) What are the screening recommendations for woman at high risk for the development of ovarian cancer?

A. Annual PAP smear

B. CA-125 level and transvaginal ultrasound once every 6 months

C. Annual pelvic exam

D. Both (A) and (C)

E. All of the above

4) The primary treatment of advanced ovarian cancer includes which of the following?

A. Total Abdominal Hysterectomy/Bilateral Saplingo Oophorectomy (TAH/BSO)

B. Radiation

C. Taxane/platinum chemotherapy regimen

D. Both (A) and (C)

E. All of the above

5) What patient characteristics are ideal for optimal administration of IP chemotherapy to limit potential adverse effects or complications?

A. Optimally debulked disease

B. Nonobese

C. Good renal function

D. Both (A) and (C)

E. All of the above

6) In a patient with diabetic neuropathy, what chemotherapy regimen would you recommend for primary chemotherapy treatment of ovarian cancer?

A. Paclitaxel 175 mg/m^2 over 3 hours plus carboplatin AUC = 5 over 1 hour

B. Paclitaxel 135 mg/m^2 over 24 hours plus cisplatin 75 mg/m^2 over 4 hours

C. Paclitaxel 175 mg/m^2 over 3 hours plus carboplatin AUC = 5 over 1 hour

D. Docetaxel 75 mg/m^2 over 1 hours plus carboplatin AUC = 5 over 1 hour

E. Docetaxel 75 mg/m^2 over 1 hour plus cisplatin 75 mg/m^2 over 4 hours

7) A patient is receiving paclitaxel 175 mg/m^2 IV over 3 hours with carboplatin AUC 5 for primary treatment of her ovarian cancer experiences a hypersensitivity reaction during her first paclitaxel infusion. All of the following would be reasonable options to complete her chemotherapy primary treatment *except?*

A. Increase the duration of the paclitaxel infusion time to 6 hours

B. Administer premedications including steroid H1 blocker, and H2 blocker 24 hours prior to paclitaxel infusion

C. Discontinue paclitaxel and continue with carboplatin alone for the remaining five cycles

D. Replace paclitaxel with docetaxel 75 mg/m^2 IV given in combination with carboplatin for the remaining five cycles

E. All of the above would be reasonable options

Refer to the following case for questions 8 through 10
DG is a 76-year-old woman with ovarian cancer post-TAH/BSO. The plan is for DG to receive paclitaxel 175 mg/m^2 over 3 hours and carboplatin AUC = 5 every 28 days for a total of six cycles. Height 159 cm, actual body weight 75 kg, and adjusted body weight 60.9 kg. Laboratory results: Hg: 12 g/dL, HCT: 36%, Plt: 187 K/µL, WBC: 4.5 K/µL, electrolytes WNL, BUN: 10 mg/dL, SrCr: 0.9 mg/dL, total bilirubin: 0.3 mg/dL. CA-125: 77 U/mL.

8) What is the appropriate dose of paclitaxel for DG to receive for each cycle?

A. 175 mg

B. 265 mg

C. 285 mg

D. 320 mg

E. 350 mg

9) What is the appropriate dose of carboplatin for DG to receive for each cycle?

A. 340 mg

B. 380 mg

C. 420 mg

D. 440 mg

E. 495 mg

10) When would you consider consolidation chemotherapy for DG?

A. If after six cycles her CA-125 was still greater than 35 U/mL

B. Negative physical exam

C. Negative CT scan

D. Positive PET scan

E. All of the above

11) RT is a 27-year-old female who presented with a solid mass on her right ovary. She underwent TAH/BSO tumor debulking surgery and was diagnosed with Stage

IIA, low-grade ovarian cancer. What adjuvant treatment should she receive after surgery?

A. Pelvic radiation one-shot

B. Observation with routine 3-month follow-up exams

C. Paclitaxel 175 mg/m^2 over 3 hours plus carboplatin AUC = 5 over 1 hour for six cycles

D. Letrozole 2.5 mg once daily for six cycles

E. Bevacizumab 15 mg/kg once every 3 weeks for 12 months

12) Which of the following would be appropriate chemotherapy treatment for patient with recurrent platinum-sensitive cancer for a curative intent?

A. Six cycles of gemcitabine 1,000 mg/m^2 plus cisplatin 40 mg/m^2 on days 1 and 15 given once every 28 days

B. Six cycles of topotecan 0.75 mg/m^2 on days 1, 2, and 3 plus cisplatin 40 mg/m^2 on day 1 only given once every 21 days

C. Six cycles of liposomal doxorubicin 40 mg/m^2 plus carboplatin AUC = 5 over 1 hour given once every 28 days

D. Both (A) and (C)

E. All of the above

13) What is a common complication of progressive ovarian cancer that may require a surgical intervention for patient comfort?

A. New peritoneal implants

B. Small bowel obstruction

C. Lung nodule

D. Ascites

E. All of the above

14) Which of the following agents would you recommend in a patient with significant renal insufficiency for the treatment of platinum-resistant recurrent ovarian cancer?

A. Weekly paclitaxel

B. Gemcitabine

C. Topotecan

D. Liposomal doxorubicin

E. All of the above

15) A patient with recurrent ovarian cancer receiving oxycodone extended release for pain management calls with new complaint of increasing constipation and

nausea. What potential complication of ovarian cancer would you want to rule out prior to changing her bowel regimen?

A. Small bowel obstruction

B. Small bowel perforation

C. Ascites accumulation

D. Neuropathy

E. Thrombosis

Chapter 111 - Acute Leukemias

1) Mr. T.Y., a 34-year-old male, is diagnosed with acute promyelocytic leukemia (APL). Which of the following cytogenetic abnormalities is associated with APL?

A. t(9;22)

B. t(15;17)

C. t(8;14)

D. t(8;21)

2) Mr. T.Y., a 34-year-old male, is diagnosed with APL. He has an excellent performance status, an ejection fraction of 65%, and has no prior history of a myelodysplastic syndrome. Based on the information listed above, what would be the most appropriate treatment regimen?

A. Nilotinib 400 mg orally twice daily

B. Tretinoin 45 mg/m^2/day divided into two doses orally plus an anthracycline for four doses

C. Cytarabine 100 mg/m^2 IV continuous infusion daily for 7 days plus an anthracycline for 3 days

D. Vincristine, prednisone, daunorubicin, and pegaspargase

3) Mr. T.Y., a 34-year-old male, is diagnosed with APL. He has an excellent performance status, an ejection fraction of 65%, and has no prior history of a myelodysplastic syndrome. All of the following are side effects of the treatment chosen for APL except:

A. Prolonged QTc interval

B. Disseminated intravascular coagulation

C. Hyperleukocytosis

D. Differentiation syndrome

4) Poor prognostic factors in acute myeloid leukemia (AML) include:

A. Philadelphia chromosome-positive, high WBC at diagnosis, lack of CR after 4 to 5 weeks of induction chemotherapy

B. Older age, normal cytogenetics, low platelet count at diagnosis

C. t(15;17), preceding hematologic disorder, low platelet count at diagnosis

D. Older age, preceding hematologic disorder, del(5q)

5) Standard induction chemotherapy for pediatric acute lymphocytic leukemia (ALL) includes:

A. High-dose cytarabine with or without anthracyclines

B. Vincristine, corticosteroid, and pegaspargase

C. Methotrexate, mercaptopurine, with or without prednisone

D. Daunorubicin, cytarabine, and etoposide

6) H.R. is a 73-year-old man, who presents with fever, increased fatigue, and bruising. A complete blood count reveals a white cell (WBC) count of 900 cells/mm^3, Hb of 7.8 g/dL, and platelets of 44,000/mm^3. After his workup, he is diagnosed with AML and also develops disseminated intravascular coagulopathy. He has normal cytogenetics. The most appropriate treatment regimen for H.R. is:

A. Cytarabine 2,000 mg/m^2 IV every 12 hours on days 1, 3, and 5

B. All-trans retinoic acid orally 45 mg/m^2/day divided into two doses

C. Daunorubicin 45 mg/m^2/day on days 1 through 3 plus cytarabine 2,000 mg/m^2/day IV continuous infusion on days 1 through 7

D. Clofarabine 30 mg/m^2/day IV on days 1 to 5

7) Which of the following are associated with a good prognosis in pediatric ALL?

A. Philadelphia chromosome

B. Trisomies of chromosome 4 and 10

C. T-cell immunophenotype

D. Mixed-lineage leukemia (MLL) gene rearrangement

8) When considering differentiation syndrome, which of the following is *false*?

A. Arsenic is not associated with differentiation syndrome

B. The syndrome may be predicted by the WBC at diagnosis

C. The syndrome is most commonly manifested as fever, weight gain, prolonged QTc syndrome, and respiratory distress

D. The treatment of choice for differentiation syndrome is dexamethasone 10 mg IV twice daily

9) To establish a diagnosis of adult AML, all of the following tests and procedures are essential except:

A. Bone marrow aspirate and biopsy

B. Cytogenetic analysis

C. Lumbar puncture

D. Cytochemical staining

10) Therapy for pediatric ALL is divided into five phases. Which of the following describes the correct sequence of treatment?

A. Remission induction, consolidation, delayed intensification, interim maintenance, and maintenance

B. Interim maintenance, remission induction, delayed intensification, consolidation, and maintenance

C. Remission induction, consolidation, interim maintenance, delayed intensification, and maintenance

D. Interim maintenance, consolidation, delayed intensification, remission induction, and maintenance

11) All of the following are poor prognostic risk factors for acute lymphoblastic leukemia, except:

A. Age < 1 year

B. White blood cell count > 50,000 cells/mm^3

C. t(4;11) or t (9;22)

D. TEL-AML

12) P.L. is a 14-year-old female who has started induction therapy for acute lymphoblastic leukemia. Her monitoring plan should include the following:

A. Calcium, phosphorus, uric acid, glucose, CBC, and platelets

B. Calcium, phosphorus, uric acid, creatinine, glucose, CBC, and platelets

C. CBC and platelets

D. Calcium, phosphorus, and CBC

13) R.L. is a 49-year-old male with newly diagnosed acute lymphoblastic leukemia. Cytogenetic analysis reveals t(9:22). His induction chemotherapy treatment regimen should include which of the following agents?

A. Daunorubicin, vinblastine, prednisone, pegaspargase, and rituximab

B. Doxorubicin, methotrexate, dexamethasone, and trastuzumab

C. Daunorubicin, vincristine, prednisone, pegaspargase, and imatinib

D. Clofarabine, cytarabine, dexamethasone, and imatinib

Chapter 112 - Chronic Leukemias

1) For chronic myeloid leukemia (CML), a first-line treatment that is the best option for keeping the disease in remission for the long-term with manageable toxicity is:

A. Interferon alfa

B. Allogeneic stem cell transplant

C. Imatinib

D. Cytarabine

E. Busulfan

2) The molecular marker in hematopoietic progenitor cells that defines CML is known as which of the following?

A. Philadelphia chromosome (translocation of chromosome 9 and 22)

B. Deletion of chromosome 17

C. Deletion of chromosome 13

D. Inversion of chromosome 16

E. Translocation of chromosome 15 and 17

3) If a patient being treated for CML has the T315I mutation, which of the following is the best option for inducing a clinical response?

A. Hydroxyurea

B. Imatinib

C. Ponatinib

D. Interferon alfa

E. Dasatinib

4) Which one of the following agents has clinical data that demonstrates the highest degree of molecular response in first-line treatment of CML with at least 2 years of follow-up?

A. Ponatinib

B. Omacetaxine

C. Nilotinib

D. Imatinib

E. Lenalidomide

5) Which one of the following most accurately describes prominent toxicities to be monitored for patients receiving dasatinib?

A. Myelosuppression, myalgias, pleural effusion

B. SIADH, alopecia, mucositis

C. Seizure, peripheral neuropathy, constipation

D. Thromboembolism, somnolence, neuropathy

E. Nausea/vomiting, neuropathy, hearing loss

6) Which one of the following patients with CML would be the best candidate for an allogeneic stem cell transplant?

A. A 62-year-old patient with newly diagnosed disease, sibling-matched donor available and no prior treatment for CML

B. A 45-year-old patient with a sibling match and CML harboring a T315I mutation with disease that has progressed following salvage therapy with ponatinib

C. A 71-year-old patient with refractory CML to imatinib and a second-generation tyrosine kinase inhibitor who has no suitable match for transplant

D. A 71-year-old patient with refractory CML to front-line nilotinib who has a sibling match

E. A 31-year-old patient in chronic phase with molecular response achieved with imatinib

7) A newly diagnosed chronic phase CML patient is started on primary therapy with imatinib 400 mg orally daily. At 3 months, the patient has not yet achieved a complete hematologic remission, what is the most appropriate course of action?

A. Repeat the bone marrow biopsy for cytogenetic analysis

B. Continue imatinib 400 mg orally daily until 6 months then assess molecular response

C. Consider second-generation tyrosine kinase inhibitor, clinical trial, or hematopoietic stem cell transplant if an appropriate candidate

D. Hold imatinib and monitor molecular response for the next 3 months

E. Discontinue imatinib and start interferon alfa plus cytarabine

8) A patient with CML progresses to myeloid blast crisis despite having received three lines of tyrosine kinase inhibitor based therapy over the course of 22 months. What is the best course of action for further therapy?

A. Re-treat with tyrosine kinase inhibitor therapy that was used first-line

B. There are no further treatment options

C. Induction/remission therapy with cytarabine and an anthracycline

D. Hydroxyurea

E. Refer for consideration of hospice

9) A standard first-line treatment for a patient with CLL with Stage III disease with progressive symptoms such as thrombocytopenia, anemia, and lymphadenopathy would be which of the following treatments?

A. No therapy

B. Autologous stem cell transplant

C. Bendamustine and rituximab

D. Imatinib

E. Bortezomib

10) Which of the following predicts a more aggressive disease course and shorter remission with standard treatment options for CLL patients?

A. Age less than 70 years

B. Presence of the Philadelphia chromosome (translocation of chromosomes 9 and 22)

C. Presence of the cytogenetic abnormality involving deletion of chromosome 17

D. Having a confirmed sibling matched donor for allogeneic stem cell transplant

E. Presence of the cytogenetic abnormality involving deletion of chromosome 13

11) A 69-year-old patient with newly diagnosed stage III chronic lymphocytic leukemia (CLL) is being considered for initial therapy. The patient has medical comorbidities including diabetes, congestive heart failure (CHF), chronic obstructive pulmonary disease (COPD), and diabetic neuropathy. The patient does not have the poor prognostic cytogenetic abnormalities. Which one of the following treatment options would be best to provide the patient with a chance for disease response while considering the patient's frail health?

A. Cytarabine and daunorubicin

B. Oxaliplatin, fludarabine, alemtuzumab, and rituximab

C. Bendamustine and rituximab

D. Rituximab, cyclophosphamide, doxorubicin, vincristine, and prednisone

E. Carfilzomib

12) Which of the following regimens has demonstrated improvement in disease time to progression for CLL treatment in both the front-line and second-line treatment settings?

A. Lenalidomide

B. Fludarabine, cyclophosphamide, and rituximab

C. Chlorambucil and prednisone

D. Ofatumumab

E. Nilotinib

13) Patients receiving active treatment for CLL may require which of the following supportive care measures?

A. IV immune globulin for hypogammaglobinemia

B. Prophylactic cranial irradiation

C. Leucovorin rescue to prevent mucositis

D. Allopurinol for hyperuricemia

E. Zoledronic acid for treatment of bone lytic lesions

14) A 56-year-old female patient is receiving alemtuzumab as second-line therapy for CLL. Which one of the following is the best choice as a supportive care measure for this patient?

A. Revaccination with all live vaccines

B. Treatment with trimethoprim/sulfamethoxazole for *Pneumocystis* prophylaxis

C. White blood cell transfusions if the patient's absolute neutrophil count falls below 500 mm^3

D. Bi-weekly injections with pegfilgrastim

E. Hospitalization for 1 month during initiation of therapy

15) Which of the following treatment settings is most appropriate for the use of ofatumumab in CLL?

A. First-line treatment as a single agent

B. As an substitute agent for rituximab in patients that experience infusion-related events with rituximab

C. In combination with fludarabine and cyclophosphamide for front-line treatment

D. For refractory CLL in patients previously treated with a fludarabine-based regimen and alemtuzumab

E. In combination with conditioning chemotherapy for allogeneic stem cell transplant

Chapter 113 - Multiple Myeloma

1) Which of the following agents used in the management of patients with multiple myeloma (MM) does not increase the risk for the development of a thrombotic event?

A. Lenalidomide

B. Dexamethasone

C. Thalidomide

D. Bortezomib

2) In patients receiving bortezomib, which of the following is the most likely encountered Grade 3 or 4 nonhematologic adverse event?

A. Thromboembolism

B. Peripheral neuropathy

C. Skin rash

D. Nephrotoxicity

3) Which of the following is the most common disease-related complication of MM at diagnosis?

A. Osteolytic lesions

B. CNS involvement

C. High white blood cell count

D. Lymphadenopathy

4) Which of the following is the most appropriate choice for upfront therapy in a 45-year-old patient with MM and significant renal dysfunction?

A. MPT

B. Pomalidomide and dexamethasone

C. Lenalidomide and dexamethasone

D. Bortezomib and dexamethasone

5) Which of the following is the most appropriate therapy to use as the preparative regimen prior to auto-HSCT?

A. VAD

B. High-dose melphalan

C. High-dose total body irradiation and melphalan

D. Busulfan and cyclophosphamide

6) The International Staging System (ISS) for myeloma is based upon which of the following?

A. Serum β_2 microglobulin

B. Serum albumin

C. Performance status

D. Immunoglobulin subtype

E. Both A and B

7) Which of the following is the best method for reducing thromboembolism risk associated with thalidomide-based therapy in a patient with multiple comorbidities?

A. Low-dose warfarin

B. Low-molecular-weight heparin

C. Aspirin

D. No prophylaxis is needed in this patient

8) Which of the following is a major limitation of allogeneic stem cell transplant in MM?

A. Lack of graft-versus-MM effect

B. High graft rejection rate

C. High transplant mortality

D. Low risk of graft-versus-host disease

9) Which of the following is an established benefit(s) of bisphosphonate therapy in MM?

A. Reduction in pain

B. Higher rate of fractures

C. High anti-MM activity

D. ONJ

10) Which of the following is a commonly used salvage therapy in MM?

A. MPT

B. VAD

C. Auto-HSCT

D. Hyper CVAD

11) Which of the following is a strategy to prolong disease-free and potentially overall survival in patients that achieve a complete remission after auto-HSCT?

A. Bisphosphonates

B. Tandem auto-HSCT

C. Maintenance, lenalidomide

D. Aspirin

E. None of the above

12) Which of the following is commonly used to determine the diagnosis of MM?

A. Serum electrophoresis

B. Polymerase chain reaction

C. Serum free light chain assay

D. Southern Blot

E. Both A and C

13) Which of the following is commonly associated with MGUS?

A. Renal failure

B. Neuropathy

C. >20% plasma cells in the bone marrow

D. Hypercalcemia

E. None of the above

14) Which of the following agents used as initial therapy for MM increases the risk of shingles and requires prophylaxis with acyclovir?

A. Bortezomib

B. Lenalidomide

C. Thalidomide

D. Melphalan

15) Which of the following is a likely advantage of lenalidomide compared to thalidomide?

A. More active

B. Better tolerated

C. Lower treatment related mortality

D. Both A and B

E. None of the above

Chapter 114 - Myelodysplastic Syndromes

1) Symptoms present in patients with myelodysplastic syndrome may include which of the following?

A. Dysphagia

B. Fatigue

C. Painless lymphadenopathy

D. All of the above

2) Which of the following tests is *routinely* done in the diagnosis of patients with MDS?

A. Bone marrow aspiration and biopsy

B. Computed tomography of the chest, abdomen, and pelvis

C. Lymph node biopsy

D. Magnetic resonance imaging of the brain

3) In regard to the pathophysiology of MDS, patients are found to have;

A. Decreased bone marrow proliferation

B. Decreased apoptosis

C. Reduced response to regulatory cytokines

D. All of the above

4) KR is a 36-year-old woman with a history of stage 2A breast cancer. She underwent radical mastectomy; radiation; and adjuvant chemotherapy with doxorubicin, cyclophosphamide, and paclitaxel. She then received 5 years of tamoxifen. On routine follow-up 7 years after her diagnosis of breast cancer, she was found to have a hemoglobin of 9.8 g/dL, neutrophil count of 1.7 x 10^9 cells/L,

and platelets of 67 x 10^9 cells/L. Bone marrow biopsy was consistent with MDS-refractory anemia with excess blasts-2 (RAEB-2). Her cytogenetics revealed a 7q chromosomal deletion. Which of the following medications is her therapy-related MDS *most likely* related to?

A. Doxorubicin
B. Cyclophosphamide
C. Paclitaxel
D. Tamoxifen

5) MB is a 74-year-old man with MDS. His hemoglobin is 6.8 g/dL, neutrophil count is 0.8 x 10^9 cells/L, and platelets are 43 x 10^9 cells/L. Bone marrow biopsy reveals 9% blasts. His cytogenetics are normal. What is his IPSS score?

A. 0
B. 1
C. 1.5
D. 2

6) Treatment goals in MDS may include

A. Altering the natural history of the disease
B. Reducing transfusions
C. Improving quality of life
D. All of the above

7) What is the *most appropriate* therapy for a 72-year-old man with MDS associated with an isolated chromosomal 5q deletion?

A. Antithymocyte globulin 40 mg/kg/day IV for 4 days
B. Azacitidine 75 mg/m^2 SC daily for 7 days
C. Lenalidomide 10 mg by mouth daily
D. Thalidomide 200 mg by mouth every night at bedtime

8) What is the *most effective* therapy for a 37-year-old woman with refractory anemia with excess blasts-2 (RAEB-2) noted to have a chromosome 7 abnormality?

A. Matched sibling donor allogeneic hematopoietic stem cell transplant
B. Autologous hematopoietic stem cell transplant
C. Lenalidomide
D. Darbepoetin

9) Which of the following therapies demonstrated improvement in overall survival in patients with MDS?

A. Azacitidine

B. Lenalidomide

C. AML-type induction chemotherapy

D. Romiplostim

10) Which of the following patients is *most likely* to respond to antithymocyte globulin?

A. A 45-year-old woman with refractory anemia with an isolated chromosomal 5q deletion who has required transfusions for the past 2 years

B. A 35-year-old woman with HLA DR15 expression who has required transfusions for the past month

C. A 72-year-old man with a serum erythropoietin level of 237 mIU/mL who has required red blood cell transfusions for the past 4 months

D. None of the above

11) Mr. Smith is a 78-year-old man with a medical history of heart failure, type II diabetes, and myelodysplastic syndrome-refractory anemia with excess blasts-2 (RAEB-2). He read about iron overload on the MDS foundation website and would like to know what benefits he would have from receiving deferasirox. You explain to him that treatment of MDS with deferasirox has been shown to do which of the following?

A. Reverse congestive heart failure and improve shortness of breath

B. Decrease insulin requirements and lower hemoglobin A1C

C. Prolong life by 2 to 3 years

D. Decrease serum ferritin, a blood test that indicates iron overload

12) Which of the following patients is *most likely* to respond to erythropoietin therapy?

A. A 27-year-old woman requiring six red blood cell transfusions per month for the past 3 months with a serum erythropoietin level of 672 MIU/mL

B. A 63-year-old man requiring three red blood cell transfusions per month for the past 2 years with a serum erythropoietin level of 512 MIU/mL

C. A 72-year-old woman requiring one red blood cell transfusion per month for the past 3 months with a serum erythropoietin level of 172 MIU/mL

D. A 63-year-old man requiring one red blood cells transfusions per month for the past 2 years with a serum erythropoietin level of 430 MIU/mL

13) M.K. is a 64-year-old man with refractory anemia with ringed sideroblasts (RARS). He has normal cytogenetics. His hemoglobin is 9 g/dL, neutrophil count is 2.7 x 10^9cells/L, and platelets are 107 x 10^9 cells/L. Which of the following regimens would you recommend for him?

A. Erythropoietin 40,000 units SC + filgrastim 100 mcg SC twice weekly

B. Erythropoietin 40,000 units SC every 2 weeks

C. Darbepoetin 200 mcg SC every 2 weeks

D. Filgrastim 480 mcg SC once daily

14) Common adverse effects of lenalidomide include which of the following?

A. Rash and peripheral neuropathy

B. Rash and peripheral cytopenias

C. QTc interval prolongation and peripheral neuropathy

D. Peripheral cytopenias and QTc prolongation

15) Notable adverse effects of DNA hypomethylating agents include which of the following?

A. Peripheral cytopenias and hepatotoxicity

B. QTc interval prolongation and hepatotoxicity

C. Peripheral neuropathy and QTc interval prolongation

D. Peripheral cytopenias and peripheral neuropathy

Chapter 115 - Renal Cell Carcinoma

1) All of the following patients would be at an increased risk of RCC *except*:

A. A male with a 50-pack-year smoking history who continues to smoke

B. A male who uses 2 g of acetaminophen daily for his osteoarthritis

C. An obese male with a body mass index (BMI) of 31

D. A male with a 20-year-history of poorly controlled hypertension

2) Compared with hereditary RCC, sporadic RCC is more likely to be:

A. Diagnosed in younger patients

B. Seen concurrently with other malignancies

C. Multicentric rather than unicentric

D. Present in one kidney rather than in both kidneys

3) Von Hippel-Lindau (VHL) can best be described as a/an:

A. Oncogene

B. Tumor suppressor gene

C. Receptor tyrosine kinase

D. Substrate for vascular endothelial growth factor (VEGF)

4) Both HIF and VHL play important roles in the development of clear cell RCC. When VHL is *unable* to bind to HIF….

A. HIF is destroyed by the proteasome rapidly

B. HIF phosphorylates AKT and increases mammalian target of rapamycin (mTOR) activity

C. HIF is able to travel to the cell nucleus and activate genes that increase cell growth

D. HIF methylates important cell growth genes resulting in cell apoptosis

5) The current treatment of RCC has shifted toward targeted therapy against a variety of substances that play a role in the pathogenesis of the disease. All of the following are genes that are directly activated by the HIF complex *except*:

A. Glucose transporter-1

B. Vascular endothelial growth factor (VEGF)

C. Mammalian target of rapamycin (mTOR)

D. Platelet-dependent growth factor (PDGF)

6) The most common presentation of RCC can best be described by which of the following scenarios?

A. A patient with flank pain, hematuria, and a palpable abdominal mass

B. A patient with fever and unexplained weight gain

C. A patient with severe bone and new-onset seizures

D. A patient with mild nonspecific symptoms, who undergoes a CT scan for an unrelated GI problem

7) Regardless of stage of disease, which of the following treatment modalities is ideally utilized in the initial management of RCC?

A. Surgery

B. Radiation

C. Targeted therapy

D. Immunotherapy

8) Although frequently utilized in the management of RCC, which of the following therapies is not FDA-approved for the treatment of this disease?

A. Bevacizumab

B. Interleukin-2

C. Interferon

D. Pazopanib

E. Everolimus

9) Capillary leak syndrome is seen mostly commonly in patients treated with which of the following agents?

A. Sorafenib

B. Sunitinib

C. Interferon

D. Interluekin-2

E. Temsirolimus

10) Which of the following targeted therapies is the *best* choice for the first-line treatment of metastatic RCC in a patient with an MSKCC risk classification of poor risk (three or four of five factors)?

A. Sunitinib

B. Temsirolimus

C. Sorafenib

D. Bevacizumab

E. Everolimus

11) Which of the following targeted therapies is the *best* choice for the second-line treatment of metastatic RCC in an individual who has experienced disease progression on a tyrosine kinase inhibitor?

A. Temsirolimus

B. Bevacizumab

C. Sorafenib

D. Pazopanib

E. Everolimus

12) The targeted agent, bevacizumab, is a humanized monoclonal antibody that exerts its biological effect by binding:

A. VEGFR on the cell surface of cancer cells

B. EGFR on the cell surface of cancer cells

C. VEGF circulating in the blood stream

D. EGF circulating in the blood stream

E. HER-2/neu circulating in the blood stream

13) The role of chemotherapy in the management of RCC can best be described as:

A. Most beneficial in the adjuvant setting following nephrectomy

B. Primarily used in combination with the tyrosine kinase inhibitors

C. Consisting primarily of 5-fluorouracil given concurrently with radiation

D. Minimal because of the high frequency of intrinsic resistance mechanisms

14) The tyrosine kinase inhibitors, sunitinib, sorafenib, and pazopanib, exert their biological effect by binding:

A. Intracellular kinase domains resulting in downregulation of a constitutively active signaling pathway

B. Extracelluar kinase domains resulting in downregulation of a constitutively active signaling pathway

C. Intracellular kinase domains resulting in upregulation of a constitutively inactive signaling pathway

D. Extracellular kinase domains resulting in upregulation of a constitutively inactive signaling pathway

15) Which of the following agents are most likely to cause hyperlipidemia, hyperglycemia, and hypercholesterolemia?

A. Bevacizumab

B. Pazopanib

C. Sorafenib

D. Sunitinib

E. Temsirolimus

Chapter 116 - Melanoma

1) Which of the following has been identified as a risk factor for melanoma?

A. Smoking

B. Alcohol use

C. Intermittent intense sun exposure

D. Age (<15 years of age)

2) Which of the following have been shown to play a role in the development and progression of melanoma?

A. Absence of the production of cytokines by melanoma cells

B. A decline in melanoma-directed antibodies associated with disease progression

C. Overstimulation of the immune system resulting in inflammation

D. Lack of mutations in key tumor cell growth pathways

3) The cardinal clinical feature of a cutaneous melanoma is a pigmented skin lesion. The clinical features used to describe the lesion are highlighted by the mnemonic ABCD. The D represents:

A. Diameter if the lesion

B. Development of the lesion over time

C. Degree of bleeding

D. Dark color

4) The most appropriate strategy for prevention of melanoma should include:

A. Use of sunscreen

B. Education about sun protection

C. Education about self-screening

D. Routine clinical screening

5) Which of the following statements regarding the staging of melanoma is true?

A. Preoperative lymphoscintigraphy and intraoperative sentinel node mapping have not been shown to be more effective than surgical resection and analysis of lymph nodes via regional lymph node dissection

B. Ulceration of the melanoma lesion is evaluated in clinical staging, and is used to upstage patients with stage I, II, and III disease

C. All patients with a melanoma require pathologic evaluations of lymph nodes

D. Density of tumor infiltrating lymphocytes of tumor tissue is evaluated in clinical staging, and is used to upstage patients with stage I and II disease

6) Following surgical resection of melanoma, high-risk patients should be considered for adjuvant therapy. Which of the following statements is true?

A. High-dose interferon alfa should be used as adjuvant therapy following surgical resectionin all patients with stage I, II, and III disease

B. High-dose aldesleukin should be administered as adjuvant therapy following surgical resection in appropriate patients with stage II and III disease

C. Biochemotherapy should be administered as adjuvant therapy following surgical resection in appropriate patients with stage IB and II disease

D. Clinical trial should be considered for appropriate patients with stage II and III disease, following surgical resection

7) High-dose aldesleukin is used in the management of patients with metastatic melanoma and is associated with the capillary leak syndrome. Manifestations of drug-related capillary leak syndrome include:

A. Increase weight, increase serum creatinine, and increase blood pressure

B. Increase weight, increase blood pressure, and increase heart rate

C. Decrease weight, decrease blood pressure, and increase heart rate

D. Increase weight, decrease blood pressure, and increase heart rate

8) Which antineoplastic agent is currently approved for the treatment of melanoma?

A. Vinblastine

B. Paclitaxel

C. Dacarbazine

D. Carboplatin

9) Which of the following statements is true regarding the use of targeted therapy in the treatment of melanoma?

A. There is no rationale for the use of targeted therapy and it has not been shown to be effective in the treatment of melanoma

B. Studies have shown the use of c-*Kit* inhibitors in patients with metastatic melanoma resulted in a significant improvement in overall survival, but not response rate

C. Despite the key role protein kinases play in the proliferation of cancer cells, inhibition of these targets has not been shown to improve outcomes in melanoma

D. BRAF mutations are common in melanoma and inhibitors of this target have shown to improve response rate and overall survival

10) When treating a patient with ipilimumab, which of the following would be considered appropriate monitoring or management of the drug?

A. Ipilimumab is associated with immune-related adverse events, and options for management include dose holding and steroids

B. Ipilimumab is associated with immune-related adverse events, which only occur during infusion of the drug

C. Ipilimumab is associated with immune-related adverse events, and options for management include nonsteroidal antiinflammatory drugs and methotrexate

D. Ipilimumab is associated with immune-related adverse events, which are acute and always resolve prior to the next cycle of treatment

Chapter 117 - Hematopoietic Stem Cell Transplantation

1) Which of the following statements is false concerning the rationale of hematopoietic stem cell transplantation?

A. In some cases, administration of high doses of chemotherapy can overcome resistance mechanisms that have developed in tumor cells, thereby increasing the likelihood of cure.

B. Many chemotherapy agents demonstrate a steep dose–response curve with increased anticancer activity at higher doses.

C. Infusion of hematopoietic stem cells acts as a “rescue” from severe hematopoietic toxicity caused by high-dose chemotherapy.

D. Immune-mediated effects play a significant role in the anticancer activity of autologous hematopoietic stem cell transplants.

2) Which of the following mobilization regimens would be most appropriate for a 48-year-old man with non-Hodgkin’s lymphoma in untreated relapse?

A. G-CSF 10 mcg/kg twice daily for 5 days followed by GM-CSF 250 mcg/m^2/day for 5 days

B. Cyclophosphamide plus etoposide followed by G-CSF 5 mcg/kg/day

C. No mobilization is necessary because of the high concentration of $CD34^+$ cells in the peripheral blood

D. G-CSF 10 mcg/kg daily with plerixafor 480 mcg/kg daily starting on the evening of the fourth day of G-CSF

3) All of the following are advantages of peripheral blood over bone marrow as a source of allogeneic hematopoietic stem cells except

A. More rapid engraftment

B. Fewer transfusions

C. Reduced incidence of chronic graft-versus-host disease

D. Higher numbers of $CD34^+$ cells infused

4) LT is a 19-year-old woman with acute lymphocytic leukemia in second complete remission. Her 25-year-old brother is an 8/8 HLA antigen match, and the patient is scheduled to receive a myeloablative allogeneic hematopoietic stem cell transplant. Which of the following conditioning regimens would you expect to be used?

A. Cyclophosphamide and total-body irradiation (CyTBI)

B. Cyclophosphamide, BCNU, and VP16 (CBV)

C. Cyclophosphamide alone

D. Cyclophosphamide, thiotepa, and carboplatin (CTC)

5) Which of the following patients would be the least likely to benefit from posttransplant donor lymphocyte infusion (DLI)?

A. A 39-year-old man with CML (chronic myeloid leukemia) in cytogenetic relapse

B. A 55-year-old woman with MDS (myelodysplastic syndrome)

C. A 25-year-old man with untreated relapsed ALL

D. A 32-year-old woman with AML relapsing 3 years after transplant

6) All of the following are advantages of nonmyeloablative transplants (NMT) over standard myeloablative transplants except

A. Less graft-versus-host disease

B. Lower transplant-related mortality

C. Broader inclusion criteria

D. Ambulatory care or outpatient setting feasible

7) JH is a 35-year-old woman with acute myelogenous leukemia (AML) who is day +24 post BuCy and 8/8 HLA-matched unrelated donor transplant with a increasing bilirubin, maculopapular skin rash over the trunk and back, and intractable nausea and vomiting. She has no hepatomegaly, and her weight has remained stable over her transplant course. Her current medications include tacrolimus, voriconazole, acyclovir, trimethoprim–sulfamethizole (Bactrim DSR), ursodiol, magnesium supplements, and as-needed lorazepam. She is afebrile and is

engrafting with a white blood count of 2,100/mm^3 and platelet count of 54,000/mm^3. What is the most likely diagnosis?

A. Hepatic venoocclusive disease

B. Acute graft-versus-host disease

C. Drug hypersensitivity reaction

D. Acute infectious cholecystitis

8) For the case in question #7 what is the most appropriate therapeutic management?

A. Discontinue the trimethoprim–sulfamethizole (Bactrim DSR) to see if rash resolves and recommend a topical steroid cream.

B. Begin broad-spectrum antibiotics.

C. Biopsy the liver and institute defibrotide therapy.

D. Start prednisone 1 mg/kg/day.

9) Which of the following agents have been investigated in the treatment of steroid-refractory acute graft-versus-host disease?

A. Denileukin diftitox

B. Etanercept

C. Infliximab

D. All of the above

10) Which of the following statements best describes the importance of matching HLA antigens?

A. The degree of HLA matching does not impact the risk of graft failure.

B. The number of antigen mismatches correlates with the risk of grade III to IV acute GVHD.

C. Class I, II, and III HLA antigens are equally important for matching.

D. The most important antigens are HLA-A, -B, and -DRB1 and should be matched as closely as possible.

11) Which of the following statements about stem cell sources is true?

A. UCB has a higher risk of GVHD but a low risk of graft failure.

B. Bone marrow as a stem cell source has been correlated with an increase in risk of acute GVHD with an associated decrease in overall survival.

C. PBSC used as a stem cell source is associated with more rapid platelet engraftment.

D. All stem cell sources are considered equal; there is no benefit to using one stem cell source over another.

12) CL is a 70-year-old patient with relapsed non-Hodgkin’s lymphoma. The patient has received radiation plus three different chemotherapy regimens for

multiple relapses of the lymphoma. He is otherwise eligible for autologous HSCT, but his peripheral $CD34^+$ cell count after 4 days of G-CSF for mobilization is low (<10/µL). Which of the following stem cell mobilization regimens would be most appropriate for CL?

A. G-CSF 10 mcg/kg twice daily for 5 days followed by GM-CSF 250 mcg/m^2/day for 5 days

B. Cyclophosphamide plus etoposide followed by G-CSF 5 mcg/kg/day

C. No mobilization is necessary because of the high concentration of $CD34^+$ cells in the peripheral blood

D. Addition of plerixafor 480 mcg/kg daily starting on the evening of the fifth day of G-CSF

13) Which of the following conditioning regimens would be the most appropriate for a 48-year-old woman with non-Hodgkin's lymphoma?

A. BEAM (BCNU, etoposide, ara-c, and melphalan)

B. Busulfan and cyclophosphamide

C. Fludarabine and melphalan

D. High-dose melphalan

14) Which of the following posttransplant prophylaxis therapies would be the most appropriate for a 42-year-old patient with Philadelphia chromosome–positive ALL who is at high risk of relapse after myeloablative allogeneic transplant?

A. Donor lymphocyte infusion

B. Imatinib

C. Rituximab

D. 5-Azacitidine

15) TB is a 57-year-old man with AML who is 19 days post myeloablative matched related donor peripheral blood stem cell transplant. On examination, it is noted that TB complains of right upper quadrant pain and his abdomen is tight and distended. His laboratory values indicate that he is neutropenic and thrombocytopenic. His complete metabolic panel is normal except for elevated liver enzymes. His nurse also reports that TB has gained 7 kg since his admission. What is the most likely diagnosis for TB?

A. Graft-versus-host disease

B. Pancreatitis

C. Sinusoidal obstructive syndrome

D. Infection

16) Which of the following statements about acute GVHD is considered true?

A. The number of T-cells within the stem cell source can increase the risk for GVHD.

B. The mortality rate attributable to GVHD exceeds 80%.

C. The age of the donor and recipient does not impact the risk of GVHD.

D. Male donors are associated with a higher risk of chronic GVHD.

17) Which of the following drug combinations would be the most appropriate for GVHD prophylaxis?

A. Methylprednisolone 2 mg/kg/day

B. Cyclosporine, methotrexate, and methylprednisolone

C. Tacrolimus and methotrexate

D. Posttransplant cyclosporine

18) Which of the following statements about chronic GVHD could be considered true?

A. It primarily affects the skin, liver, and GI tract.

B. The incidence of chronic GVHD is decreasing because of alternative donors.

C. The initial treatment of chronic GVHD is mycophenolate mofetil.

D. A previous history of acute GVHD increases the risk for chronic GVHD.

19) HS is a 48–year-old man who was just diagnosed with severe chronic GVHD of the skin. His physician would like to initiate therapy immediately. Which of the following choices would be the most appropriate for initial therapy for chronic GVHD?

A. Prednisone 1 mg/kg/day with cyclosporine

B. Clobetasol

C. Prednisone 0.5 mg/kg/day with mycophenolate

D. Extracorporeal photophoresis

Chapter 118 - Assessment of Nutrition Status and Nutrition Requirements

1) A 16-year-old young woman is admitted with a new diagnosis of ulcerative colitis. She has had a 15-lb (6.8-kg) weight loss in the past 4 months. Which of the following would be expected in this patient with marasmus?

A. Edema secondary to hypoalbuminemia

B. Triceps skinfold thickness within normal range for age and gender

C. Evidence of skeletal muscle wasting

D. No physical evidence of malnutrition

2) Appropriate components of an effective nutrition screening program are included in which one of the following?

A. Serum albumin concentration, weight, and body mass index (BMI)

B. Weight, height, and BMI

C. Bioelectrical impedance analysis, serum albumin concentration, and height

D. Triceps skinfold thickness and serum C-reactive protein and prealbumin concentration

3) CT is a 75-year-old woman (weight, 150 lb [68.2 kg]; height, 5′10″ [178 cm]). How would her nutrition status be assessed using her ideal body weight?

A. Normal

B. Mild malnutrition

C. Moderate malnutrition

D. Severe malnutrition

4) Jack is a 49-year-old man who is being seen in Family Medicine Clinic. He raises concerns about his weight and asks for help. Jack is 6′1″ (185 cm) tall and weighs 250 lb (113.6 kg). Based on Jack's BMI, what is the best interpretation of his current nutrition status?

A. Normal, healthy

B. Moderate obesity

C. Severe or morbid obesity

D. Severe malnutrition

5) Which of the following would significantly impact the accuracy of a bioelectrical impedance measurement?

A. Volume overload

B. Muscle wasting

C. Hypoalbuminemia

D. Low total body fat percentage

6) Which of the following would be the most appropriate test to measure the acute response (first 3–4 days) to refeeding in a patient suffering from chronic starvation?

A. Serum albumin concentration

B. Serum transferrin concentration

C. Serum prealbumin concentration

D. Serum C-reactive protein concentration

7) CT is seen in the clinic today for follow-up of his nutrition status. He has been on home parenteral nutrition for 15 years. His parenteral nutrition regimen has included a standard trace element cocktail during this time. Routine laboratory study results are within reference ranges except that his total and direct bilirubin concentrations are elevated. He describes a tremor that he has developed since his

last visit, and his wife states that he has been acting more aggressive and irritable lately. These symptoms are most consistent with which of the following?

A. Manganese toxicity

B. Zinc deficiency

C. Chromium deficiency

D. Copper toxicity

8) RS has an ileostomy. The output from the ostomy has been several liters each day for several weeks. He has developed thinning hair and dry, scaly skin. A deficiency of which of the following is the most likely cause of these new conditions?

A. Vitamin B_{12} (cyanocobalamin)

B. Selenium

C. Essential fatty acids

D. Zinc

9) SW has fat malabsorption caused by cystic fibrosis. His serum alkaline phosphatase is elevated, but his hepatic enzymes are within the reference range. Which of the following laboratory tests should be done to further evaluate the increase in alkaline phosphatase?

A. Serum 25-OH-vitamin D

B. Serum 1,25-(OH)2-vitamin D

C. Serum vitamin A

D. Serum vitamin E

10) Which of the following would be the most appropriate initial calorie intake provided to a man who weighs 330 lb (150 kg), is 5′11″ (180 cm) tall, and is in the intensive care unit secondary to sustaining multiple trauma, including head trauma, in a motor vehicle accident?

A. 1,100 kcal/day (4604 kJ/day)

B. 2,100 kcal/day (8790 kJ/day)

C. 3,750 kcal/day (15,697 kJ/day)

D. 4,500 kcal/day (18,836 kJ/day)

11) The amount of protein required daily by a normal, healthy 70-year-old individual who weighs 132 lb (60 kg) is which of the following?

A. 30 g

B. 48 g

C. 60 g

D. 120 g

12) EG (weight, 143 lb [65 kg]; height, 5′5″ [165 cm]) is a 58-year-old woman admitted to the hospital tonight for surgery in the morning. She will not be allowed to eat or drink anything (nil per os [NPO]) after 12 midnight in preparation for anesthesia during the operative procedure. She has a peripheral intravenous (IV) catheter placed. The intern asks for your help in ordering her IV fluids. Which of the following would be the most appropriate rate at which to run EG's maintenance fluids once she is NPO?

A. 75 mL/hr

B. 100 mL/hr

C. 150 mL/hr

D. 200 mL/hr

13) A 78-year-old woman (weight, 103 lb [47 kg]; height, 5′1″ [155 cm]) is admitted with a small bowel obstruction. She underwent an exploratory laparotomy and bowel resection 8 days ago. She has been receiving a parenteral nutrition (PN) solution with final concentrations of dextrose 12.5% and amino acids 5% at a rate of 90 mL/hr for the past 3 days. A 24-hour urine for urea nitrogen (UUN) was reported today as 10.2 g N. What is this patient's nitrogen balance?

A. Positive 3 (+3)

B. Positive 7 (+7)

C. Negative 7 (−7)

D. Negative 3 (−3)

14) WF (weight, 121 lb [55 kg]; height, 5′5″ [165 cm]), a patient on the general medicine ward who is relatively sedentary, is receiving a PN solution that provides 2,500 mL/day; 2,500 kcal/day (10,464 kJ/day) (total); 55 g protein/day; and a nonprotein calorie distribution of 70% CHO:30% fat. She underwent a metabolic gas monitor study (indirect calorimetry) today. The results of her study were reported as: REE, 1,500 kcal/day (6,278 kJ/day) and RQ, 0.9. Which of the following is the best interpretation of the current amount of calories being provided to WF by her current PN regimen?

A. An appropriate amount of calories

B. Too many calories

C. Not enough calories

D. Unable to determine; the indirect calorimetry study was invalid

15) ZZ has congestive heart failure. In addition to his other drugs, he is receiving furosemide 80 mg orally two times daily. Which of the following nutrient imbalances could occur as a result of ZZ's diuretic therapy?

A. Hypercalcemia and thiamine deficiency

B. Hypercalcemia and thiamine toxicity

C. Hypocalcemia and thiamine deficiency

D. Hypocalcemia and thiamine toxicity

Chapter 119 - Parenteral Nutrition

Questions 1 through 8 refer to the following information:

A 70-year-old man was admitted to the hospital after a 3-week history of nausea, vomiting, diarrhea, and increasing abdominal girth. The initial physical examination revealed a pelvic mass, which was confirmed by a computed tomography (CT) scan. Subsequent barium enema revealed an obstruction of the sigmoid colon. The patient was subsequently taken to surgery for exploratory laparotomy at which time the patient underwent an omentectomy, a jejunal–ileal anastomosis, and central venous access placement. After surgery, the patient developed hypotension and respiratory failure requiring mechanical ventilation. The patient continued to have a distended abdomen on postoperative day 9. A nasogastric tube was placed for low continuous gastric suction with approximately 600 to 800 mL/day output. The patient has no renal or liver function laboratory abnormalities and remains hemodynamically stable requiring continuous intravenous norepinephrine for blood pressure support. He is receiving propofol 30 mL/h intravenously for sedation. The Nutrition Support Team is consulted to begin parenteral nutrition (PN). The patient's goal regimen was determined to be (final concentrations) 6% amino acids and 20% dextrose at 70 mL/h continuous infusion with 20% IV fat emulsion (IVFE) 250 mL/day via piggyback infusion over 12 hours.

Pertinent Data:

Height: 5 ft 11 in (180 cm)
Admission weight: 68 kg (150 lb)
Weight 2 months prior to admission: 82 kg (180 lb)
Present weight: 71 kg (156 lb)

1) The best approach for initiating PN for this patient is to begin therapy with a regimen that provides

A. The goal estimated caloric and protein requirements beginning PN day 1

B. 75% to 100% calculated caloric requirements PN day 1 and cycle the infusion over 16 hours

C. 25% to 50% calculated caloric requirements on PN day 1 and advance to the goal regimen over 3 to 4 days

D. 100% dextrose calories on PN day 1 and advance protein dose over 3 to 4 days

2) The daily amount of protein (in grams) provided by the goal regimen is

A. 63

B. 75

C. 86

D. 101

3) The daily amount of dextrose (in grams) provided by the goal regimen is

A. 114

B. 242

C. 336

D. 418

4) The approximate daily amount of nitrogen (in grams) provided by the goal regimen is

A. 13

B. 16

C. 23

D. 35

5) The volume of 10% amino acid and 70% dextrose stock solutions required to provide the desired daily protein and carbohydrate amounts for the goal regimen are

A. 102 mL amino acids; 200 mL dextrose

B. 415 mL amino acids; 257 mL dextrose

C. 840 mL amino acids; 360 mL dextrose

D. 1,010 mL amino acids; 480 mL dextrose

6) The daily total calories (energy) provided by the TPN regimen is

A. 1,547 kcal (6,475 kJ)

B. 1,609 kcal (6,735 kJ)

C. 2,046 kcal (8,564 kJ)

D. 2,248 kcal (9,410 kJ)

7) The total daily amount of IVFE the patient is receiving is

A. 50 g

B. 72 g

C. 122 g

D. 140 g

8) Given the patient's current clinical status and therapeutic regimen, the most appropriate intervention to make at this time would be to

A. Reduce the parenteral nutrition infusion rate to 35 mL/h

B. Discontinue the IVFE

C. Reduce the amino acid concentration to 4.25%

D. Increase the dextrose concentration to 30%

9) Which of the following amino acids is considered conditionally essential for preterm and term infants?

A. Arginine

B. Cysteine

C. Glutamine

D. Leucine

10) Which of the following PN solutions is the most suitable for peripheral infusion?

A. 20 g protein; 70 g dextrose in total volume of 500 mL

B. 75 g protein; 200 g dextrose, 50 gm IVFE in total volume of 1,440 mL

C. 80 g protein; 185 g dextrose in total volume of 1920 mL

D. 100 g protein; 300 g dextrose in total volume of 1,800 mL

11) Which of the following combinations of additives in a PN solution that provides 105 g amino acids and 350 g dextrose in 1,920 mL per day is most likely to result in an incompatibility?

A. Potassium phosphate 40 mmol/day (40 mEq/day), calcium gluconate 10 mEq/day (5 mmol/day), and sodium acetate 150 mEq/day (150 mmol/day)

B. Sodium phosphate 35 mmol/L (35 mEq/day), calcium gluconate 5 mEq/L (2.5 mmol/L), and sodium bicarbonate 50 mEq/L (50 mmol/L)

C. Magnesium sulfate 32 mEq/day (16 mmol/d), calcium gluconate 10 mEq/day (5 mmol/day), and cysteine 160 mg

D. Potassium phosphate 20 mmol/L, magnesium sulfate 8 mEq/L (4 mmol/L), and ranitidine 150 mg/day

12) The United States Pharmacopeia–assigned beyond use date for parenteral nutrition formulations is

A. 24 hours at room temperature; 3 days refrigerated

B. 30 hours at room temperature; 9 days refrigerated

C. 36 hours at room temperature; 12 days refrigerated

D. 48 hours at room temperature; 14 days refrigerated

13) Which of the following components of PN is most important in a 24-week-gestation neonate within the first 24 hours of life?

A. Amino acids

B. Calcium

C. Carnitine

D. Fat emulsion

14) A 6-week-old infant who was born at 28 weeks of gestation weighs 2.2 kg and has been receiving PN since birth. The infant's hospital course is significant for necrotizing enterocolitis that required an extensive small bowel resection. Currently, the infant has a direct bilirubin concentration of 4.6 mg/dL (79 µmol/L) and is receiving the following nutrition regimen: PN with 20% dextrose and 2.5% amino acids at 10 mL/h and 20% IVFE at 1.5 mL/h. Which of the following interventions is most appropriate regarding this infant's PN regimen?

A. Decrease PN rate to 6 mL/h

B. Decrease dextrose to 15%

C. Decrease amino acids to 2%

D. Decrease IVFE to 1 mL/h

15) Which of the following patients is the least likely candidate for initiating cyclic PN?

A. A 3-month-old infant with short bowel syndrome and PNALD who is being prepared for home PN discharge

B. A 2-year-old child with a ruptured appendix who is receiving IV antibiotics via peripherally inserted central catheter

C. An 11-year-old child with uncontrolled Crohn's disease being treated with steroids and IV antibiotics for intraabdominal sepsis

D. A 17-year-old adolescent with end-stage cystic fibrosis who is receiving PN while awaiting lung transplantation

Chapter 120 - Enteral Nutrition

~~**Results Reporter**~~

1) Which of the following strategies has been recommended to minimize the risk of aspiration in patients receiving enteral nutrition (EN)?

A. Keep the head of the bed elevated to a 30- to 45-degree angle

B. Add blue food dye to the enteral formula

C. Change from continuous to bolus administration

D. Change from standard polymeric to high caloric density formula

2) The end-product of bacterial degradation of fiber within the colon is:

A. Medium-chain triglycerides

B. Long-chain triglycerides

C. Omega-3 fatty acids

D. Short-chain fatty acids

3) In a patient with normal functioning motility who will require long-term EN in the home setting due to dysphagia, the preferred access choice is:

A. Nasogastric

B. Nasojejunal

C. Gastrostomy

D. Jejunostomy

4) An advantage of the bolus method of EN administration compared to the continuous method is that it:

A. Requires less equipment

B. Is preferred when feeding into the jejunum

C. Is better tolerated

D. Is preferred when initiating feeding

5) EN should be *avoided* in which of the following patients?

A. A patient receiving cancer chemotherapy

B. A patient with diabetic gastroparesis

C. A patient with necrotizing enterocolitis

D. A patient with acute pancreatitis

6) Which of the following techniques is appropriate for medication administration via a nasogastric feeding tube?

A. Never administer hypertonic medications

B. Always hold the feeding for 1 hour before and after administering medications

C. Always flush the tube with at least 30 mL of water before and after administering the medication

D. Only administer medications that are available in a liquid form

7) When EN is started in a patient receiving warfarin, which of the following is *most likely* to occur:

A. Increase in warfarin dose required due to decreased absorption

B. Increase in warfarin dose required due to increased elimination

C. Decrease in warfarin dose required due to increased absorption

D. Decrease in warfarin dose required due to decreased elimination

8) Components of gut barrier function include all of the following *except*:

A. Gut-associated lymphoid tissue (GALT)

B. Small bowel peristalsis

C. Bacterial translocation

D. Secretion of hydrochloric acid by the stomach

9) Specialized enteral formulas designed to improve outcomes in patients with acute respiratory distress syndrome and severe acute lung injury are:

A. Low in fat content

B. Supplemented with omega-3 fatty acids

C. High in carbohydrate content

D. Supplemented with glutamine

10) In a geriatric patient with a history of massive stroke and a hemicolectomy, which of the following is an advantage of EN via a jejunostomy compared with a gastrostomy?

A. Decreased risk of aspiration

B. Decreased colostomy output

C. Decreased flatulence

D. Decreased cost associated with placement

11) When initiating EN in a pediatric patient with a jejunostomy, which of the following methods is preferred?

A. Continuous infusion of a half-strength formulation

B. Continuous infusion of a full-strength formulation

C. Bolus administration of a half-strength formulation

D. Bolus administration of a full-strength formulation

12) Potential advantages of EN compared to parenteral nutrition include all of the following *except*:

A. Less infectious complications

B. Less cost

C. Improved nitrogen balance

D. Improved glucose tolerance

13) Which of the following enteral formulas is *most likely* to contribute to the development of diarrhea?

A. Use of a fiber-containing formula

B. Use of a peptide-based formula

C. Use of an MCT-containing, low fat formula

D. Use of a powder formula that requires reconstitution

14) In an adult patient receiving EN who experiences a gastric residual volume of 150 mL, which of the following interventions is preferred?

A. Hold the feeding

B. Decrease the administration rate

C. Dilute the formulation and continue the same rate

D. No intervention required

15) When should EN be initiated in an adult critically ill patient with multiple trauma who is mechanically ventilated?

A. Upon arrival to the intensive care unit

B. Within 24 to 48 hours after hospital admission

C. Within 5 to 7 days after hospital admission

D. It will depend on the patient's underlying nutritional status

Chapter 121 - Obesity

On completion of the chapter, the reader will be able to:

1) Compute the body mass index (BMI) for a 53-year-old Hispanic woman who is 5 ft, 5 in tall and weighs 175 lb (87.5 kg).

A. 22 kg/m^2

B. 29 kg/m^2

C. 35 kg/m^2

D. 40 kg/m^2

2) According to the National Institutes of Health (NIH) guidelines, which one of the following categories best describe an African American woman with a BMI of 38 kg/m^2?

A. Normal

B. Overweight

C. Obese

D. Extremely obese

3) All of the following medical conditions are more prevalent in patients with obesity except

A. Infertility

B. Diabetes

C. Depression

D. Hyperthyroidism

4) Which of the following initial weight loss goals is most appropriate for a 268-lb (122-kg) patient considering weight loss intervention for obesity?

A. Rapid weight loss of 6 lb (3 kg) over 1 month

B. Rapid weight loss of 13 lb (6.5 kg) over 1 month

C. Gradual weight loss of 26 lb (13 kg) over 6 months

D. Gradual weight loss of 100 lb (50 kg) over 6 months

5) Which one of the following interventions represents the mainstay of weight loss therapy?

A. Low-calorie diet, exercise, and behavioral modification

B. Phentermine 30 mg orally every morning

C. Leptin injections

D. Laparoscopic vertically banded gastroplasty

6) Which of the following choices best describes the appropriate criteria for initiation of drug therapy for weight loss after a patient has failed a 6-month trial of diet, exercise, and behavior modification?

A. A BMI above 27 kg/m^2 with comorbidities or a BMI above 29 kg/m^2

B. A BMI above 27 kg/m^2 with comorbidities or a BMI above 30 kg/m^2

C. A BMI above 25 kg/m^2 with comorbidities or a BMI above 30 kg/m^2

D. A BMI above 25 kg/m^2 with comorbidities or a BMI above 29 kg/m^2

7) Which of the following choices best describes the appropriate criteria for consideration of bariatric surgery therapy after a patient has failed trials of lifestyle modification and pharmacologic therapy?

A. A BMI above 25 kg/m^2 with comorbidities or a BMI above 30 kg/m^2

B. A BMI above 30 kg/m^2 with comorbidities or a BMI above 35 kg/m^2

C. A BMI above 35 kg/m^2 with comorbidities or a BMI above 40 kg/m^2

D. A BMI above 30 kg/m^2 with comorbidities or a BMI above 40 kg/m^2

8) All of the following supplements are required to prevent nutritional deficiencies in bariatric surgery patients except

A. Calcium citrate

B. Iron

C. Folic acid

D. Potassium chloride

9) Which of the following postoperative considerations is important in bariatric surgery patients?

A. Altered drug absorption

B. Altered nutrient absorption

C. Enhanced adverse drug effects

D. All of the above

10) Which of the following medications may require dosing adjustments in patients receiving orlistat therapy?

A. Atorvastatin

B. Digoxin

C. Cyclosporine

D. Metformin

11) Which of the following effects would most likely be experienced by a patient taking lorcaserin?

A. Paraesthesia

B. Dumping syndrome

C. Headache

D. Dysgeusia

12) Lorcaserin therapy should be discontinued if a patient fails to loss 5% of his or her initial body weight after

A. 8 weeks

B. 12 weeks

C. 16 weeks

D. 20 weeks

13) Which of the following effects would most likely be experienced by a patient taking phentermine–topiramate extended release?

A. Increased heart rate

B. Dumping syndrome

C. Headache

D. Priapism

14) Which of the following weight loss medications requires monitoring of serum electrolytes and creatinine?

A. Lorcaserin

B. Orlistat

C. Diethylpropion

D. Phentermine–topiramate

15) Dietary supplements containing bitter orange can best be described as

A. Nonhydrolyzable fiber

B. Sympathomimetic amines

C. Ephedra alkaloids

D. Hoodia extracts